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15—428—Electric wire imbedders, at 75c each.
1—4055—Root centrifugal strainer, at $20.00.

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250 plain wood separators, 100 for 75c.

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3—G4090—Storage tank, 80-gal., honey gate attached, $11.50 each.
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XUM

Honey Markets

Information from Producing Areas (first half of November)

California Points: Southern California—The weather during the past two weeks has been warm and clear. In sage locations, most colonies are in good shape, with plenty of stores. An unusual amount of off-bloom orange is reported, which is producing enough nectar to cause bees in orange areas to start broodrearing. Those in reach of eucalyptus and mustard are also rearing some brood. Supplies of orange honey in the hands of beekeepers are very light and are firmly held. Supplies of white to water white sage now appear heavier than was indicated in our last report. Buckwheat-sage, however, is in limited supply, and relatively lighter than supplies of the better grades of sage honey. Imperial Valley producers still have most of this year's crop on hand. Even with light amber alfalfa selling at 3c per lb. or less, however, beekeepers in the Valley are said to be unwilling to sell their bees and appear to be in better shape than other agriculturists. The movement of honey of all classes has been better this year than last because of the low prices, and the market tone is firm. Sales by beekeepers reported as follows, in ton lots, or more, per lb.: Orange, water white, mostly 5½c; some held higher, and few low as 4¾; extra white, 5¼-5½c; white, 5¼-5¾; sage, water white, 5¼-5½c; occasional lot, 4¾-5c; extra white, 4½-5c; white, 3¾-4¾c; light amber, 3½-3¾c; buckwheat-sage, extra light amber, 3¼-3¾c; some, 3⅞c; light amber buckwheat-sage and light amber buckwheat, 3-3¼c; light amber alfalfa, 3c; some Imperial Valley light amber alfalfa, $3.25 per case of 100 pounds. Beeswax is dull and unchanged, selling at mostly 8c per lb. cash and 10c per lb. in trade delivered at Los Angeles, with some dealers paying only in trade. Central California—Rainfall is considerably below average. Winter stores are irregular. Bees are working on eucalyptus, and pollen is coming in from other sources. Local sales are improving, with local stores buying more freely. Supplies of honey are only moderate. Light amber alfalfa has generally sold at 3c per lb. in ton lots; amber, 2½c per lb.; light amber mixed flowers, 2⅝-2¾c per lb.; light amber buckwheat has brought 3c per lb. in ton lots; 6c in small pails; small lots of white lippia reported moved at 4c per lb. Beeswax is unchanged at 8-10c per lb. Northern California—Because of the shortage of precipitation new thistle plants have not started to grow. Considerable inquiry for export reported with producers holding firm. Alfalfa honey is in better demand than thistle. White thistle reported sold in large lots at 4-4½c per lb.; 2 cars extra light amber thistle, $4.70 per case of 120 pounds, with smaller lots selling at 3¾-4c per lb.; light amber, 3¼c; amber mixed flavors, 3⅛c; light amber alfalfa mostly around 3c per lb. Wrapped thistle comb is selling at $2.40 per case. Beeswax, demand slow at 8-10c per lb.

Pacific Northwest: East of Cascades—Bees are in generally good condition. Sales reported of light amber alfalfa and sweet clover at 4½-5c per lb. West of Cascades—Many colonies have insufficient food and will need feeding soon. Fireweed honey is very scarce, especially in Oregon, because of the limited summer flow, and with only a little light amber fireweed reported from Washington. Sales reported, light amber extracted to,n lots, 4-4½c per lb.; few higher; 60s, 6c per lb.; extra light amber, large lots, 5-7½c per lb.; some small pails, 7c per lb.

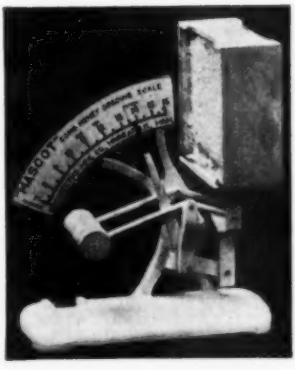
Intermountain Region—A larger amount of both comb and extracted is being sold locally than usual, and many beekeepers are exchanging honey for goods and services. Most small beekeepers have now sold out, and with most of the remainder of the crop in the hands of commercial beekeepers a more stabilized condition exists. As the local demand continues good in most sections, partly due to the fact that honey is selling lower than corn syrups, the price tendency appears to be stronger. At the same time, inquiries for carlots are said to be increasing. Carlot sales of sweet clover and alfalfa have been reported, water white mostly 4c; extra white, 3¾; white mostly 3½c; one car, 3 1-6c; ton lots, white to water white, 4-5c; 60s, 4½-7c; small pails, very wide range, 4-8c per lb.; extra light amber carlots, 3-3¼c per lb. Comb honey is said to be in larger volume than usual, with quality and weight above normal. Few sales reported No. 1, $2.10-3.00 per case; No. 2, $1.50-1.60 per case. Beeswax is reported selling at 12c per lb.

Plains Area: Red River Valley of North Dakota and Minnesota—Outdoor packing is more general this year, some beekeepers dividing their bees between outdoor and indoor packing and an increasing number leaving all their hives outdoors. Sales reported of white extracted, 1 car, 4½c per lb.; ton lots, 4⅝-5c per lb.; water white, 5¼c; small pails, 7-7½c per lb. Iowa—Honey is moving fairly well, according to most reporters, and the carlot price for white extracted is given as 4-4½c per lb.; small pails, 7-8c per lb., with some 5-pound pails reported retailing at 7c per lb. Comb honey appears to be selling more slowly than usual.

Northeastern States: New York—Honey is generally selling slowly, with local demand better than that from outside points. Sales reported of white extracted in 60s, 5-6½c; few, 7c; small pails, 7½c; light amber, large lots, 6c; small pails, 7½c; buckwheat, small pails, 7c per lb.; amber and buckwheat, 60s, 5c per lb.; No. 2 white and mixed comb reported sold at $2.40 per case. No. 1 white clover, $3.00 per case. Pennsylvania—Honey is moving well locally, especially at roadside stands. Sales reported of water white alsike at 8c per lb. in 60s. Southern Vermont—Bees are in good condition for winter, though stores are light in some areas. The market is dull, with few 60s moving at 8-9c per lb. Beeswax is very quiet at 13-15c per lb. Connecticut—Bees have been able to fly during part of this period and are in good shape for winter, with ample stores and young bees. Rainfall has given the honey plants moisture that they needed, and they are now in good condition for next year.

Southern Ontario.—Light-colored extracted

Grading Scale



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reported sold in 60s at 7c per lb.; small pails, 8c per lb; dark extracted in 60s, 5½c per lb. Fancy comb honey has brought $5.50 per case; culls, $2.00 per case.

Summary.—At the turn of the month a cold wave, with much snow, spread over much of the northern part of the country. Until that time the weather had been mild enough so that the bees could fly occasionally, even in the northern states. Most beekeepers have packed their outdoor-wintered bees, and some bees have been placed in cellars. As a rule, colonies are well supplied with young bees. Winter stores were more inadequate than anticipated a few weeks ago, partly because the warm weather has permitted bees to fly, thus consuming stores which were intended for colder weather.

Demand for honey locally continues better than many beekeepers had feared in view of the general financial condition of the country. Carlot inquiry has increased, and many sections report a good local sale in small containers. In some of the western producing sections honey is retailing at a lower price than corn syrup. Exchanging honey for groceries, clothes, minor house repairs, etc., is reported in many areas. Export inquiry is fair, especially for light amber alfalfa. Some beekeepers, discouraged at prevailing low prices, are paying little attention to their bees, but most commercial beekeepers feel that they are as well off as other agriculturists, and one man reports being unable to purchase any bees in the Imperial Valley. Comb honey is moving slowly.

Monthly Report of Honey Producers

Early in November we sent the following questions to honey producers: 1. What per cent of the honey produced in your locality this season has already left the hands of producers? 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word as slow, fair or rapid. 6. What is the condition of the colonies for winter in your locality compared with normal, considering the number and age of the bees and supply of stores? Give answer in per cent. 7. How does the number of colonies to be wintered in your locality compare with that of last year? Give answer in per cent. 8. What is the present condition of honey plants in your locality compared with normal? Give answer in per cent. The answers received are tabulated as follows:

State. Name.	Pct. sold.	Large lots. Ex.	Large lots. Comb.	To grocers. Ex.	To grocers. Comb.	Retail price. Ex.	Retail price. Comb.	Movement.	Con. No. colo. col.	Con. No. colo. win.	Con. honey plants.
Ala. (J. M. Cutts)	..	..	..	$.45	$4.50	$.60	$.25	Fair	60	100	75
B. C. (A. W. Finlay)	65	.09½	..	.60	4.50	.75	..	Fair	100	100	100
Calif. (L. L. Andrews)	99	.04	..	..	..	.40	.14	Fair	100	100	85
Colo. (O. E. Adcock)	20	..	2.00	.37½	2.75	.45	.15	Slow	80	80	50
Colo. (J. A. Green)	15	..	..	.32	2.40	.45	.15	Slow	100	110	100
Conn. (A. Latham)	25	..	..	..	4.75	.80	.29	Fair	125	100	125
Fla. (H. Hewitt)	70	..	..	.50	..	.65	..	Slow	100	80	100
Ga. (J. J. Wilder)	..	.04½	..	.40	..	.50	..	Slow	80	70	90
Ill. (A. L. Kildow)	20	.05	2.50	..	3.00	.50	.15	Fair	100	105	100
Ind. (T. C. Johnson)	50	..	..	.50	2.50	.65	.15	Slow	90	100	100
Ind. (E. S. Miller)	30	.05	..	.50	3.00	.60	.16	Slow	100	100	100
Iowa. (E. G. Brown)	60	.04	..	..	..	.50	..	Fair	110	100	110
Iowa. (F. Coverdale)	50	..	..	.45	3.25	.50	.15	Fair	100	90	100
Kans. (J. F. Garner)	60	..	2.67	.40	3.25	.50	.18	Fair	100	100	100
La. (E. C. Davis)	..	..	..	.40	..	.55	..	Slow	100	100	100
Me. (O. B. Griffin)	25	..	..	..	5.75	..	.33	Slow	100	100	100
Mich. (I. D. Bartlett)	40	.05	..	.35	3.00	.45	.17	Fair	100	50	125
Mich. (L. S. Griggs)	50	.05	..	.33	2.40	.40	.12	Fair	100	125	150
Mich. (F. Markham)	50	.05	2.40	.48	..	.65	.15	Rapid	100	100	125
Mich. (E. D. Townsend)	75	.05½	..	..	..	..	..	Fair	..	..	..
Minn. (F. W. Ray)	30	.04¾	2.25	.40	2.75	.50	.16	Fair	100	100	90
Minn. (B. L. Morehouse)	20	.04¾	..	.40	..	.50	.15	Fair	90	100	70
Nebr. (J. H. Wagner)	45	.04	2.00	.40	2.40	.46	.13	Slow	90	90	90
N. J. (E. G. Carr)	5	..	..	..	..	1.00	.25	Slow	100	100	100
N. Y. (Geo. B. Howe)	75	..	..	.45	3.60	.67	.20	Fair	100	100	50
N. C. (C. L. Sams)	30	.06	..	.40	2.50	.60	.20	Fair	100	100	100
Ohio. (F. Leininger)	90	.05	3.00	..	..	..	..	Fair	120	100	100
Ohio. (J. F. Moore)	15	.05	..	.50	3.00	.65	.15	Slow	90	100	80
Okla. (Jos. Heueisen)	50	..	..	.75	..	.85	..	Slow	100	90	20
Okla. (C. F. Stiles)	60	..	..	.50	3.00	.65	.18	Fair	90	100	90
Ore. (H. A. Scullen)	17½	..	..	.32½	..	.42	.18	Fair	100	100	100
Pa. (H. Beaver)	10	..	..	.40	2.50	.50	.14	Fair	100	100	90
Pa. (D. C. Gilham)	20	..	..	.75	4.25	1.00	.25	Fair	100	105	95
Pa. (H. B. Kirk)	..	..	..	.60	3.25	.90	.25	Slow	100	100	90
S. C. (E. S. Prevost)	90	..	..	.55	..	.67	..	Slow	70	95	100
S. D. (L. A. Syverud)	..	..	..	.40	3.30	.53	.19	Fair	90	110	80
Tenn. (W. L. Walling)	100	..	..	.75	..	1.00	..	Slow	80	90	90
Texas. (T. A. Bowden)	70	..	..	.35	..	.50	..	Slow	100	90	110
Texas. (J. N. Mayes)	5	.05	4.20	..	..	.35	..	Fair	100	95	100
Texas. (H. B. Parks)	70	.04	..	.25	..	.35	..	Fair	100	100	90
Utah (M. A. Gill)	60	.04	2.40	.30	2.50	.35	.13	Fair	100	110	110
Vt. (P. Crane)	50	..	3.75	..	4.00	.75	.25	Slow	100	100	90
Va. (T. C. Asher)	40	..	..	.50	3.00	.65	.18	Slow	80	90	100
Wash. (W. L. Cox)	50	..	..	..	..	..	..	Slow	100	75	90
Wash. (G. W. B. Saxton)	25	.05	..	.34½	..	.44	..	Fair	100	100	100
W. Va. (W. C. Griffith)	95	..	..	..	..	.45	.10	Slow	90	100	80
Wis. (E. H. Hanselman)	20	..	..	.40	2.64	.45	.15	Slow	75	80	50

XUM

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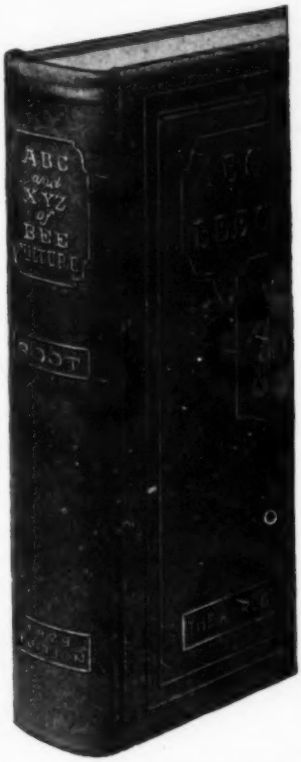

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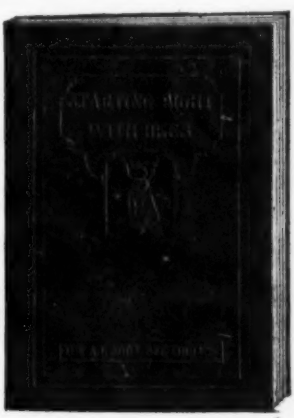

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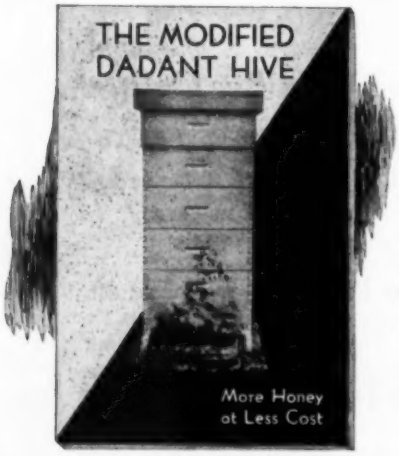

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DECEMBER, 1932

Improved Condition of Honey Plants

In much of the clover region, late rains have greatly improved the condition of white clover and alsike. While the rains came late in some localities, the mild autumn afforded opportunity for good growth so that in many cases where the young plants had been badly damaged by dry weather, they are now in good condition. In favored localities where sufficient rainfall occurred earlier, the clover plants are in better condition than they have been for several years. In the upper Mississippi and Missouri valleys, the condition of sweet clover plants is reported as below normal and in the Intermountain Region, their condition is reported as spotted, although mostly normal or above. Reports from the Southern States indicate a wide variation in the condition of the honey plants, from normal to as low as 20 per cent of normal in portions of Alabama.

Winter Meetings of Beekeepers

Many beekeepers' conventions will be held during the next few months, state, local, regional, and national. Many who have been compelled to sell their crops of honey at low prices may think that they can not afford to attend the nearest winter meeting, but strange as it may seem, there appears to be a renewed interest in the winter meetings and attendance and enthusiasm are holding up well. Beekeepers are naturally optimistic. They have to be in order to be beekeepers. Furthermore, automobiles and good roads make it possible to attend meetings even at distant points with but little cash outlay. Some drive 50 to 100 miles and save hotel bills by driving home at night.They know that they can not afford to miss a good beekeepers' meeting.

American Honey Institute

Never before in its history has American Honey Institute been able to accomplish as much in promoting honey as it is now doing on its greatly reduced budget; never before has it been in such urgent need of funds for carrying on its important work. It has required years of effort to make the many friendly contacts with manufacturers and distributors of other food products, teachers, writers, and publishers, by which honey is now receiving so much free advertising. It is, indeed, unfortunate that, having reached such a degree of efficiency, the Institute is so hampered by lack of funds just when the beekeeping industry most needs its service. The times are such that about the only hope of obtaining the much-needed funds is through small donations by a much larger number of donors. The Institute can be kept going and its efficiency even greatly increased by small donations, either money or honey, by the great multitude of loyal beekeepers who are benefited by its work. How to do this is explained in the current donated page advertisements of the Institute carried by all the bee journals published in this country. Most of the beekeepers' associations in the United States have, no doubt, arranged to handle small donations through the association.

Sowing Sweet Clover Seed During Winter

Those who have had difficulty in securing a stand of sweet clover may do well to try sowing unhulled seed in December, January or February. In many cases, it is difficult to obtain seed-in-the-hull, most of it being hulled and scarified, but county agricultural agents can often locate such seed. Since many of the harder seeds do not grow unless scarified, it is necessary to sow about 20 pounds per acre of the unhulled or unscarified seed. When the unhulled seed is sown during winter, freezing and thawing works the seed well into the ground so that it is usually well covered before germination. It is sometimes recommended that a seeding of unhulled seed be made during the winter months to be followed by a second seeding of scarified seed in the spring, thus increasing the chances of securing a stand.

Package Bees Imported by Canadian Beekeepers

Canadian beekeepers are heavy buyers of package bees from the United States as evidenced by figures secured through the Dominion Bureau of Statistics and forwarded to this journal by L. T. Floyd, Provincial Apiarist of Manitoba. The total declared value of package bees imported into Canada during the fiscal year 1932, was $56,280. This compares with a total of $70,883 during the fiscal year ending March 31, 1931. The reduced amount for the fiscal year 1932 reflects the lower prices prevailing this year, the unit volume apparently being about the same as in 1931. The two great beekeeping provinces, Manitoba and Ontario, again head the list, Manitoba having imported $16,511 worth of package bees and Ontario, $14,533 worth. Alberta is a close third with $10,508. An outstanding feature of Canadian beekeeping during recent years is the astonishing growth in the western provinces where only a few years ago there were practically no bees. This is a direct result of the introduction of sweet clover in the great wheat region of the prairie provinces.

National Honey Week

While it is impossible to measure in any way the results of the efforts to promote honey during National Honey Week, November 7 to 12, it is safe to say that more people were reminded of honey during that week than during any previous honey week. Through the efforts of Malitta Fischer Jensen, many of the large food concerns mentioned honey during their regular radio broadcasting period over nation-wide hookups. These include that of the Singing Lady in the Kellogg Company's program on November 7; Rumford Baking Powder Co. on November 7 and 8; Great Atlantic & Pacific Tea Company, on November 9, General Mills, Inc., by Betty Crocker, November 9, and Ralston Company with its broadcast November 8, 10 and 12. On November 8, James I. Hambleton gave an instructive talk on the program sponsored by the United States Department of Agriculture. In addition to these broadcasts on nation-wide hookups, many local stations carried the message of honey to thousands of listeners during the week. In addition to all these radio talks on honey, thousands of grocers featured honey during the week and many thousands of beekeepers brought honey to the attention of the people in their locality in a most aggressive manner.

But honey week should be considered only a starter to be followed up by even more aggressive sales efforts throughout the winter.

Russia's Great Experiment in Beekeeping

Dr. E. F. Phillips reports that he has recently secured a large number of photographs from Russia in addition to those which he brought with him on his return from that country, with which to illustrate his series of articles on the great Russian experiment in beekeeping mentioned in the November issue of this journal. Plans are being made to publish the first of this series of articles in the January issue of this journal in which American beekeepers will be told the truth regarding the gigantic set-up in beekeeping proposed in the second five-year plan of the Russian government, the most staggering scheme for large-scale beekeeping ever seriously proposed. Thus the answer to many questions of vital importance to American beekeepers will be revealed as the articles are published during the coming year.

Honey in Automobile Radiators

Many beekeepers are still using honey successfully in making an anti-freeze solution for their automobile radiators, but the straight mixture of honey and water in equal parts by volume as suggested when honey was first used for this purpose years ago, is not to be recommended in these days of high speed driving. While such a mixture will prevent damage to the automobile at temperatures 20° or more below zero, there is great danger that it will fail to circulate properly when starting during cold weather. By adding alcohol to thin down the mixture, it does very well, provided the connections are tight.

A mixture of equal parts by volume of honey, alcohol and water, makes a satisfactory anti-freeze solution. It has the advantage over alcohol and water in that the honey greatly retards the evaporation of the alcohol, so that for ordinary driving it is not necessary to add more alcohol during the winter. In fact, the solution can be drained off in the spring into a 60-pound honey can and saved for use

the next winter. By retarding the evaporation of alcohol, honey serves much in the same maner as glycerine, which is often recommended for this purpose.

An objection to using three ingredients in the anti-freeze solution is that it complicates testing the solution with a hydrometer, but by adding alcohol instead of water during the winter if the solution becomes low (provided there are no leaks in the system) its efficiency can be maintained.

Selling Honey from the Tank

In many cases beekeepers let it be known in the neighborhood that honey can be had at reduced prices when consumers bring their own vessels and the honey is drawn direct from the tank into these. Often they are able to sell their entire crop in this way by carrying a small advertisement in the local newspaper. The direct contact with the consumer gives the beekeeper an opportunity to explain that honey will granulate during cold weather and that it may be brought back to the liquid condition if desired, by proper heating.

If honey is to be sold in the liquid form during winter in this way it must, of course, be heated and the tank kept in a warm room which brings up the problem of regranulation in case a customer buys a considerable quantity for future use. After having been heated, the honey usually regranulates with larger crystals. Of course, the housewife can reliquefy such honey, but if it is used in the granulated form, both the appearance and flavor have suffered somewhat because of the large crystals. Some beekeepers overcome this difficulty by stirring the honey at intervals just after it begins to granulate as shown by its cloudy appearance. This hastens granulation and results in much finer crystals. While selling honey locally in this way is far from ideal from a commercial viewpoint, it certainly helps to solve the problem under existing conditions. It enables many beekeepers to obtain a fair price and at the same time please their customers.

Bees Able to Prolong Their Lives

One of the many inspiring things that comes to the attention of beekeepers during the year is the remarkable quiescence of the bees during late fall and early winter. This is especially interesting when one realizes its full meaning. It is the method by which the bees are able to prolong their lives to the extent of three or four times that of the active season. They live long by living slowly, and thus are able to tide the life of the colony through the winter period and still have enough vitality to nurse into being another generation to take their places.

So far as the colony is concerned, the sole purpose in life of the generation of bees which form the winter cluster, is to extend the span of life far beyond the ordinary in order that the colony may live. Without previously having experienced a winter, they behave as though they thoroughly understand the one great purpose of their lives. No feasts of honey for them, no rapturous activity—the heritage of youth everywhere else. They must take only sufficient food to maintain life at its lowest ebb, since otherwise an accumulation of waste material in the intestines without opportunity for a cleansing flight might prove fatal to the life of the colony. Even when a sunny day occurs in midwinter that is sufficiently warm for a flight, they must not venture on a leisurely pleasure trip to bask in the sunshine but must empty their intestines hurriedly during a short flight and return quickly to settle down in the darkness of the hive to another period of quiescence in order that the colony shall survive. A pleasure jaunt in the glorious sunshine would consume precious vitality which must be saved to the utmost in this strange life-prolonging process.

Somewhere back in the ages, did some tribes of honeybees learn the trick of prolonging life by quiescence, thus enabling them to survive when migrating to a colder climate while those which did not, perished, leaving no descendants? In some mysterious way, the deeply seated instinct is handed down from generation to generation. Otherwise, there could be no beekeeping in the temperate zone unless the hives were stocked each spring from the tropics. It is said that the native bees of Egypt, whose ancestors have always existed in a warm climate, have not learned to form a winter cluster and become quiescent as do other races. Therefore, they are not able to exist except in a tropical climate.

XUM

Refueling With Honey

Elsa J. Fishhaber

More Miles Per Gallon on a Delightful Trip to the Sunny South

We (my mother, Edward T. Coumans, honey salesman, and I) began a trip in the most entrancing early October days in my memory. Our goal was the North Carolina State Fair, but withal there was to be no overlooking of anything of interest, either business or pleasure, that might be garnered on the way.

Having had years of experience in the fairs of Michigan, I was a bit curious to see how the southerners manage theirs. North Carolina has the reputation of being one of the most progressive of the Southern States, and as its fair was very well advertised, we chose that one for our southern "invasion."

Trading Honey for Gasoline Enroute

We traveled with a Detroit-made "covered wagon" gypsying enroute, and carried a goodly load of honey and honey candies. We were loaded too heavily, in fact, and planned to make sales on the way to lighten as much as possible the load before we got to the mountains. Because of this we were able to get much of an insight on the effect of the depression, also on the bee and honey situation in the territory through which we traveled. We wanted as much as possible to pay our way with honey.

We left Michigan and entered Ohio. Strangely enough, the northern and central portion of Ohio on the road we took evidenced that the depression had hit these people harder than those in Michigan. At station after station we tried to exchange honey for gasoline, but the owners often could not afford to do so. However, at other stations we were able to exchange for all the gasoline and oil we needed, besides making sales in some stores. Southern Ohio was quite different. Sales were good. Ohioans certainly know honey and its value. In startling contrast to some places we found further on in the journey, Ohio is well supplied with "Honey for Sale" signs.

There was one sales instance in central Ohio that is certainly worth the telling. One station owner said that he had been trying to save all summer out of his profits enough to buy shells for a northern hunting trip. There was not sufficient business to permit this pleasure, but he did trade gasoline for some honey. What a splendid thing it would be if many more would recognize honey as he did, not as a luxury that could be gotten along without, but as a food that for health's sake is to be used whenever it can possibly be secured.

Region in Which Everybody Keeps Bees

We crossed the Ohio River into Kentucky. What a sight, the first time one views it! The mighty industries on the shores of the broad, flowing river, the hills on one side, great puffing locomotives on the other. But swiftly the scene changes, and we are in a country farmed by mule power. Even from the much-traveled highway are to be seen, by the side of the wooded cabins, "gums" and old-fashioned bee-boxes. No use to try to sell honey hereabouts. Everybody has bees, inquiry revealed.

One wonders how they used it. Perhaps in the remote country places they do as the neighbors of Abraham Lincoln's mother did in his babyhood when they brought her, among other things, dried berries soaked in honey.

Came a turn in the road and a romantic little Kentucky village into view. Gas was getting low so we stopped at a modern little station, filled up, and also visited some of the stores. One old storekeeper on the same spot for 40 years could not be interested; he had tried to sell honey for 30 years, but with little success. On being asked whether the people hereabouts produced much honey, he replied, "Yes, but of no account." He added that it sold well from door to door, but we did not have time to test this method.

It was also at about this point that we began to hear about honey that might make one dizzy. Further south we made inquiry about this and found that there is such a honey gathered in the mountains, but it is very rare. Our experience later at the fair showed that this insignificant unpleasantness is far too well advertised by

word of mouth among the mass of people. Something educational ought to be done either by capable beekeepers or the American Honey Institute to teach these people the actual great value of honey, and thus crowd out of their minds this over-advertised exception of which there is so little but which hurts the consumption of the good of which there is so much.

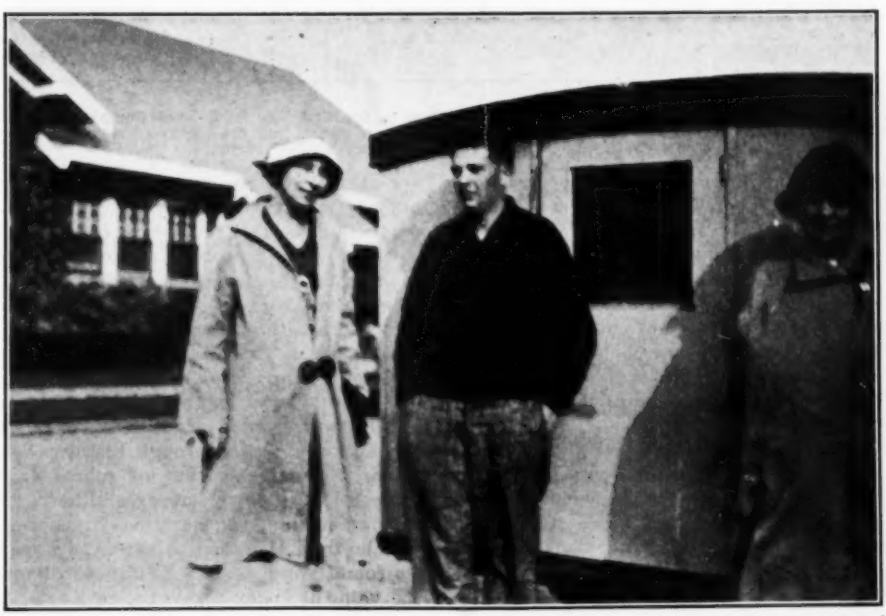
Coal Miners Like Comb Honey

We hurried on into West Virginia and among the mountains. For a considerable time we had all we could do, our first experience in real mountains, without thinking about honey at all. But before we got to the worst of the mountains we passed through the mining district along the Kanawha River, another section of extraordinary interest with its mile upon mile of mountains on one side, and its many miles of railroads and mines on the other literally on the river; and with village after village that were just huts nestled at the feet of the mountains, there being room for one house beside the other, no town having as many as two streets, we had no trouble getting gas here. These people were glad to get comb honey most any time we asked. The local price was twice as much as we could get at home. The market, however, would be too limited to try to develop in a larger business way, in these very remote parts.

Many and varied were the experiences over the miles. Many would take honey for gas in the spirit of trying anything once. We hope these were well enough pleased to become an occasional honey buyer, at least. Sometimes we would find an honest-to-goodness honey-lover, then we would fill our tank to the brim. But also on more than one occasion we met folks, who, when offered honey, would look blank and wonder what one could do with the stuff.

We finally pulled into Raleigh, sold honey at a store or two whose keeper gladly received our honey, and commented enthusiastically on its flavor. We then drove into the fair grounds, the mecca of the hour. We at once knew we were in a different region where things looked different to our eyes. Things were arranged different than is our custom, and the talk sounded different to our ears.

We found a suitable spot and camped in our covered wagon for the night. In the morning we witnessed the usual fair time preparation, and entered the larger building where we were to be placed. To us it was like a different world; instead of the tallest cornstalk they showed the



Elsa J. Fishhaber, one of Michigan's commercial honey producers (left), her mother (right), and Edward T. Coumans, honey salesman, standing at the rear of the "covered wagon," the home on wheels. The building in the background is the office of The A. I. Root Company.

highest sugar-cane; instead of Irish potatoes it was yams; instead of the biggest pumpkins it was watermelons, and cotton, and tobacco plants. The honey department was—well, almost equal to our own. I refer to the honey competitive exhibit. Our own effort was a honey and honey-candy concession separate from the honey exhibit.

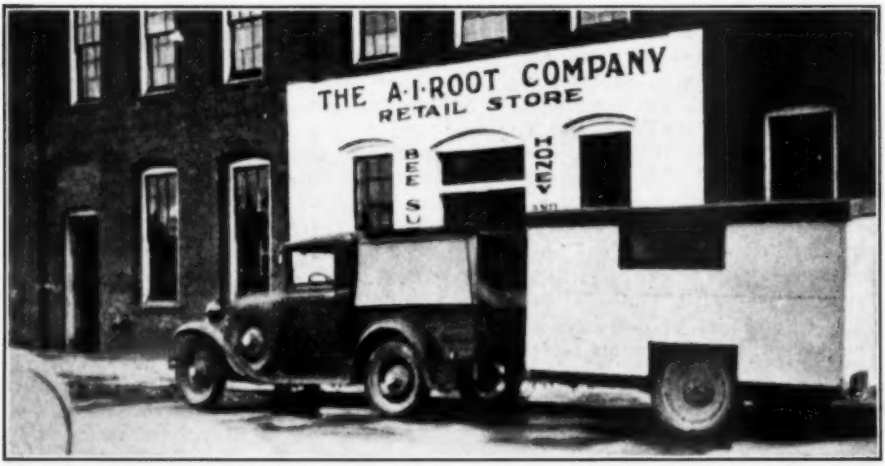
Surprising Ignorance in Regard to Honey

From that time on, it was a study of the way people reacted toward the suggestion of honey. It would be impossible to put into words all we saw and felt. Space would not permit the telling of a fraction of the experiences. Either the people were great lovers of honey, or were antipathic (there were altogether too many of these), or had never heard of it as something to eat. Indeed, one of the beekeepers exhibiting assured me that there are actually towns, small of course, where the people think the word "honey" is only an endearing term, and it does not mean a thing to them as something that might be eaten.

Certain it is that the exhibitors (some of them northern beekeepers who have made good in the South), among whom are Mr. F. R. Jordan, Mr. J. G. Kilian, Mr. Robert W. Scott, and their superintendant, Mr. Sams, might well make the Macedonian cry to the American Honey Institute, "Come over and help us teach the people to use honey." The task is too great for any one individual.

We noticed more than the usual number of folks saying, "I don't like honey." After coming home we sampled some of the various southern honeys we brought with us, and found such a strong characteristic flavor that we came to the conclusion, that, after all (although we had always been somewhat against this) blending this honey might be all right in order to get a milder flavor and thus induce more people to like it.

The most valuable part of any honey exhibit at any fair is the teaching of its use in the every day homely menus. Never mind trying to hold interest of beekeepers themselves, as we are so apt to do, but try to drive home by practical demonstration to the thousands of visitors, most of whom have very little money to spend, that this food is now within their reach and the best investment possible for both health and tastiness.



The outfit used in making the Southern trip parked in front of The A. I. Root Company's retail store at Medina, Ohio. The trailer is a veritable home on wheels and the car is arranged to carry quite a load of honey.

A Generation That Has Forgotten Honey

After a happy week at the fair we were homeward bound but over another route and eager for more experience. We took the highway north through historic Virginia, where the history of school days came to life before our eyes. Plenty of cotton fields but not many bee hives were visible from the road. Also on this road we found and sold to a doctor who knew the value of honey for diabetics.

We hurried through to Richmond, Alexandria, Washington, D. C., Baltimore, Philadelphia, and on to Newark, N. J.,

and found practically the same condition every place. Most of the people do not know honey well enough. A strange experience of Mr. Coumans when he stepped into one of the stores in a foreign section at Elizabeth, New Jersey, was the exclamation of a woman on being shown some comb honey. She said: "Well, well, I have seen nothing like this since coming over from the old country."

While driving westward through the whole length of Pennsylvania we studied conditions more thoroughly than we had before, and found that this is evidently a generation that has forgotten honey. Certainly the ancestors of these people, many of whom must have been from Holland and Germany, did use quantities of honey in their baking, etc. We did not see in all of the places that we called one single five-pound pail of honey through the entire breadth of that broad state except those we had with us, which we sold to a candy company. We saw but few pound jars, mostly 11 and 12 ounces. We stopped at many places. This story carries its own moral.

From Saginaw, Michigan, to Raleigh, North Carolina, a distance of some 860 miles, it cost us 57 pounds of honey, and 67 cents in cash. The homeward trip was something like 1380 miles. We used 67 pounds of honey and $5.40 in cash. This includes gasoline, oil, and grease. The trip to Raleigh took about 60 gallons of gas, and the homeward trip an even 100. The honey was in comb, one-pound jars, and five-pound pails, and the prices of both honey and gasoline varied very much.

We left Pennsylvania and entered Ohio. A fitting climax to a most wonderful trip was our first visit at the factories of The A. I. Root Company at Medina. Mr. E. R. Root graciously gave us an unforgettable afternoon, showing us everything about the wonderfully interesting plant, but the climax of the entire journey to my mother was when Mr. Root presented her with a generous quantity of baby blocks for her little grandchildren of whom she thinks as much as Mr. Root does of his own.

Saginaw, Michigan.

A Study of the World's Beehives

Dr. E. F. Phillips

Recent Developments in Beekeeping Emphasize Importance of Most Advantageous Size

There has just appeared an interesting book in German entitled "Progress in the Beehive Question" (Fortschritte in der Bienenwohnungsfrage) by Excellency Field Marshall Lieutenant Alexander von Mátyás of Budapest, Hungary. This book contains a vast fund of information on a subject which no longer attracts much attention in the United States. This article is not intended as a book review but rather as an effort to indicate some of the changes in beekeeping which have occurred and are occurring in various parts of the world as outlined in the book. The book is published by the author and contains 160 illustrations, three tables, and three maps.

If fifty years ago one had written an article on beehives, he would have invited arguments. This situation has completely changed, so that American beekeepers may think it strange that a book should be written about hives. Abroad the case is quite different, for the hive question still stimulates discussions. The author of this book has obtained statements of opinion and fact from leading beekeepers in all parts of the world, making his book authoritative and accurate.

Langstroth and Dzierzon

The hive opening at the top is the invention of Langstroth, while that opening at the back was invented by Dzierzon. These two great masters in beekeeping were most influential, and in the chief field of influence of each one are still to be found the types of hives which he advocated. As a scientific investigator, as in his work on parthenogenesis, Dzierzon probably surpassed Langstroth, but as a deviser of practical equipment, Langstroth was obviously superior. The Langstroth type of hive is now used throughout the western hemisphere, in China and

Japan, in Australasia, in South Africa and in the majority of European countries. In central Europe (Germany, Austria, Switzerland, northern Czechoslovakia and Hungary), the hive opening at the back persists, but even in these countries the Langstroth type of hive is gaining ground.

One hesitates to prophecy about such matters, but it seems probable that the Dzierzon type of hive will finally disappear. It will probably be eliminated as soon as will the skeps still used in parts of Europe, which means that it will take time for conservatism in beekeeping to give way to modernity. This statement is made on the assumption that the hive opening at the top is superior to that opening at the back, a point of view which American beekeepers at least will share. Some of my German friends may not accept it.

A beehive is not only a home for a colony of bees, suitable for its proper changes in strength and activity, but must also be a tool which will enable the beekeeper to give the bees the care needed. From the standpoint of a beekeeper's tool, the hive must be such that the provisions for colony development and for honey storage may be given as needed or previous to actual need. It must combine simplicity with efficiency and must be inexpensive if beekeeping is to be a practical, commercial undertaking.

These phases of hive construction have received more attention in the United States and Canada than elsewhere, because of the necessity of cheapening costs in honey production, whereas in parts of Europe, where beekeeping is often an avocation more than a vocation, elaborately decorated and costly hives are more common. Elaborate feeders, costly entrance arrangements, complicated built-in queen-excluders and other usable but expensive features are often found in hives in central Europe, and the bees and the beekeepers would probably be better off without them.

Elasticity an Important Feature

Aside from simplicity and cheapness, the most important feature of a serviceable hive is that the beekeeper may be able to adjust the space for any and every change required by the bees, and this adjustment must be possible without restriction. In all parts of the world of beekeeping, small hives have been tried, and, just as in the United States, they have had an injurious effect on beekeeping. The sometimes minute German hives, the small British standard hive, and the Heddon and Danzenbaker hives of this country have retarded the development of beekeeping. Room in a hive is useful for brood, for the winter cluster, for honey and pollen stores, for the bees and for the storage of the honey crop.

The amount of room required varies with the conditions which must be met by the colony. For summer there must be room for the fullest development of brood-rearing and for the maximum honey crop which nectar secretion and the strength of the colony will allow. For winter there should be room for the winter cluster and for all the honey and pollen which the bees may require for the fullest development of colony strength in spring, so that there will be no necessity for bothersome and dangerous spring feeding. The hive should be capable of expansion and contraction to meet these requirements, and at the same time must always be large enough for the most advantageous stores of food. Mere size then becomes an important factor, and it is a noteworthy fact that where large hives are used there is usually the best development of the beekeeping industry.

Various Sizes of Frames in Use in Different Countries

The following figures, given in centimeters, are selected from a much larger array in von Mátyás book to indicate some of the variations in size encountered in frames. Centimeters are here used because in most parts of the world the metric system is employed, and even though American beekeepers do not use this unit of measure, the figures are suitable for comparison.

	Width in cm.	Hght. in cm.	face in sq cm.
American hives			
Quinby-Dadant	46	27	1242
Dadant	42.5	27	1147
American	30.48	30.48	929
Langstroth	42.5	21.5	913
Gallup	28.58	28.58	818
Schenk (Brazil)	24.8	30	744
Danzenbaker	41	17	697
Belgian hive			
Standard	42	42	1764
German hives			
Berlepsch III	27	42	1134
Gerstung	40	25	1000
Zaiss	26	27	702
Zander	40	20	800
Kuntzsch	31	23.6	731
"Normalmass"	21.1	17.13	365
British hive			
WBC (standard)	35	20.5	697
French hives			
Dadant-Blatt	42.5	27	1147
Layens (long idea)	31	37	1147
Modified Langstroth	43	20	840

Baldensperger 28	28	784
Italian hives			
Modified Dadant-Blatt ..43	30	1290
Italo-Dadant-Blatt 42	27	1134
Norwegian hive			
Normal 35	25	875
Austrian hives			
Aust. Brietwabenstock ..41	22.5	922
Vienna Soc. frame 22.8	19.5	444
Polish hives			
Normal 43.5	30	1305
"Root" hive 43.5	25	1089
Soviet Union hives			
"Dad't comb" (uncom.) 46	30	1380
Dadant-Blatt 42.5	27	1147
Swedish hive			
Standard 30	30	900
Hungarian hives			
Boczonadi ...40.4 34 (27)	1376 (1080)	
Old soc. frame.24 17.5 (35)	402 (805)	

Grouping these frames somewhat as to similarity of size, the following table becomes available for comparison. The important factor is hive capacity.

Hive types of approximate equality:	Comb. surf. in sq. cm.	Comb surf. 10 frames sq. cm.	Content of 10-fr. hive in cu. dm.
1. German, Austrian and Hungarian standards	4-500	8-10,000	17
2. Danzenbaker, Zaiss, Kuntzsch, British stand. Baldensperger.	700	14,000	23
3. Gallup, Zander, Norwegian standard, Boczonadi, Danish	800	16,000	27
4. Langstroth, American, Swedish standard, Austrian Brietwabenstock, Swiss	900	18,000	30
5. Gerstung, Polish Root	1000	20,000	34
6. Dadant-Blatt, Berlepsch, Layens, Italo-Dadant-Blatt, French Congress	1100	22,000	37
7. Quinby-Dadant (little used)	1200	24,000	40
8. Holland std., Polish std., Russian Dadant comb (little used)	1300	26,000	44
9. Russian Dadant (little used)	1400	28,000	47
10. Belgian standard	1700	34,000	57

Double Brood-Chambers

Of these hives, the smallest ones, such as the German and Austrian standards, are habitually used with more than one 10-frame hive body for brood, so that the actual brood space is increased accordingly, provided the combs permit free access of the queens to the different hive bodies. With small combs this is usually not a serious problem, for comb sagging is not noticeable in small combs. The Danzenbaker hive in the second group was once intended to be used as a two-story hive, but this method of use was abandoned. The British standard, Gallup and Zander hives are used as single hive bodies, and the same is true of all the larger hives listed with one important exception.

The use of two hive bodies is naturally the most feasible way to double the capacity of most of the larger hives, for frames twice as deep as the larger ones would be impractical. Consideration must also be given to the fact that in extracting it is inconvenient or impossible to use the deeper frames, so that with all of the larger frames, in classes 5 to 10, shallow extracting supers must be employed. This brings us to the largest frame which can be used in two hive bodies with advantage to the bees and with convenience to the beekeeper, namely, those in class 4, in which is the Langstroth hive. But even in this class, most of the frames are not suitable for extracting (Gallup, American). Naturally a deep type of frame becomes unwieldly for extracting and only the frames that are wider than they are deep serve this purpose well.

It might also be possible to use a deep frame with a shallow frame over it as a means of increasing brood and cluster capacity, but this is a combination which is at once recognized as impracticable. On the contrary, some beekeepers seem to think it feasible to use a shallow hive body to hold additional stores, the so-called shallow food-chamber, yet to this there is as good reason for objection as to two sizes of frames for cluster and brood.

While the deep frames may usually be better for brood rearing, because the queens can pass in unbroken great circles as they lay their eggs, this is about the only argument which can now be advanced for the deepest frames. With modern methods of comb-foundation manufacture and with more recently developed methods for preventing the sagging of combs, this feature becomes less important, and, in fact, by proper care becomes quite unimportant. The last objection to a divided brood-chamber disappears when worker cells can be obtained to the top of the combs.

Advantages of Double Brood-Chambers

The following are the chief arguments in favor of the divided brood-chamber of dimensions approximating those of the two-story Langstroth hive:

(1) The best methods of swarm control have been worked out for this kind of hive and almost all involve changing frames from one hive body to another.

(2) Present extracting equipment is not adapted to the use of frames deeper than the Langstroth, enabling beekeepers to

use no frame deeper than this if only one kind is to occur in the apiary.

(3) Sagging of combs, while somewhat controllable by wiring or other methods, is more serious in deeper combs. Sagging

"This is a real winter cluster," said Jack Deyell, manager of The A. I. Root Company's apiaries as he tilted back the heavy upper story after a frosty morning in early November, "the result of a young queen, and an upper story of honey in August and September."

when exaggerated so reduces the area available for brood in deeper frames as to make them no larger in brood-rearing capacity than the Langstroth frame.

(4) No hive deeper than the Langstroth is well adapted for comb-honey production. Probably American beekeepers will not go back to comb-honey production, as was once necessitated by unfair competition in the honey markets, but there may be times when a greater emphasis on comb-honey production would be profitable. For comb-honey production the Langstroth depth is ideal, provided the brood-chamber is reduced to one story for the period of surplus honey production. Any frame deeper than the Langstroth offers obstacles to comb-honey production.

(5) Increasing skill in beekeeping and improvements in queens are making larger hives more imperative than ever before, and no hive of one story that is practical of operation is any longer large enough. The two-story Langstroth hive meets the present requirements better than any other, because it is the largest hive in general use.

(6) Increasing appreciation of the desirability of large amounts of honey for spring development make the use of any single-story hive unsuitable for the amount of honey now desirable. A two-story Langstroth hive is almost large enough for the most severe depletion of honey stores in spring, due to inclement weather, although it must be confessed that occasionally the bees will use more than the 50 or 60 pounds of honey left for this purpose by those who use the two-story Langstroth hive for wintering with the second story filled with honey. No smaller amount of honey gives that degree of safety and insurance which modern beekeeping demands.

(7) The heavy demands placed on queens by providing abundant stores for spring and the obtaining of enormous colonies for the honey flow have increased the number of beekeepers who seek to have young queens in their hives each year. There is an increasing recognition of the fact that a queen that has done one year's good service is rarely worth trying for a second year. With two-story Langstroth hives, natural supersedure at the close of the honey flow is the rule rather than the exception, thus relieving the beekeeper of additional work in requeening.

It would have made little or no difference for present conditions in beekeeping if Langstroth had made his hive a fraction of an inch deeper or shallower, for the fractions in the dimensions are unimportant to the bees. The important thing is that by the use of two stories an enormous hive is created and that this great size is demanded by modern methods of beekeeping. No hive much shallower or smaller than a two-story Langstroth can meet the requirements, and even a single-story Jumbo hive is now too small. The two-story Langstroth hive is larger than any of the hives enumerated in the von Mátyás book, although in Europe I saw frames 60 x 60 cm., which makes a 10-frame hive twice as large as a two-story Langstroth. The present skill of beekeep-

ers and the queens now available make such hives too large. The answer seems to be the two-story Langstroth hive, and the amazing thing is the vast diversity of conditions to which it is adapted.

Langstroth Builded Better Than He Knew

When it is recalled that the dimensions formulated by Langstroth were for the production of box honey, and when it is remembered that the better methods for creating enormous colonies of bees in time for an early honey flow were then not well understood, we must conclude that Langstroth by a fortunate chance devised a hive which fills the bill. A great beemaster as he was, Langstroth could never have anticipated that his hive would answer for the vast variety of conditions of nectar sources and beekeeping skill for which it now serves. Neither could he have anticipated the day when the frame of his dimensions should be found serviceable in such scattered parts of the world. Langstroth himself was not wedded to his dimensions, as indicated by his willingness to change when beekeeping conditions in the country changed, and of him it can justly be said that he builded better than he knew.

Shallow Food-Chamber Too Small

It is probably a conservative estimate to state that 95 per cent of American beekeepers who use modern equipment, have Langstroth hives, so that deep frame hives now attract little attention. The purpose of enumerating the advantages of the two-story Langstroth hive is not to condemn the deeper hives, but it is to suggest to those beekeepers who use the Langstroth hive with a shallow food-chamber that they may be standing in their own light by compromising with respect to the honey stores which they leave with the bees for spring. These beekeepers maintain the nuisance of having two sizes of frames in their apiaries. If there were real reason for this, it would be justifiable, but since it seems clear that a shallow food-chamber is too small to give the safest results, freedom from the nuisance of two kinds of frames may be attained, and at the same time safer and better beekeeping methods may be used. A Langstroth hive with a shallow food-chamber is doubtless better than a single-story hive of any depth now used, but is neither so good nor so safe as a full-depth food-chamber.

The von Mátyás book discusses many more things about hives but many of them seem to us unimportant. For example, there is a discussion of the proper location of the hive entrance. We periodically read of efforts to use top or middle

Two-story beekeeping. Editor Demuth, pointing at the big winter cluster in the two-story hive, asks Editor Root (who manipulated the camera) if he thinks this one is strong enough to winter. The temperature was 44° F. when the picture was taken but the night had been much colder.

entrances, each effort in this line seemingly being considered as a discovery, whereas in all parts of the world this is ancient history. The periodically advocated long idea hive likewise is widely distributed, largely through the influence of Layens, a French leader in beekeeping. If only the beginner in beekeeping who thinks that he can invent a hive better than ever before used, would read the von Mátyás book, we should perhaps be spared many so-called inventions. I had no idea that so interesting a book could be written about beehives as this one by von Mátyás. It is a contribution to the history and current development of the beekeeping industry.

Ithaca, New York.

Characteristics of Various Races of Bees

Erwin C. Alfonsus

Differences in Productiveness Indicate No Such Thing as Best Producing Race

Many favorable and undesirable traits of Italian, Carniolan, and Caucasian bees have been thoroughly discussed in popular and scientific literature. However, enthusiasm has usually given preference to one race, while the other races, too often without being tried, have been considered as inferior. A factor to be taken into consideration is the difficulty of obtaining racially pure queens in the United States. Back home in Austria, I had the opportunity to work with various races of bees such as Italians from Italy, Golden Italians from the United States, Caucasians, Cyprians, Syrians, Egyptians, North Africans, Carniolans, Lower Austrians, Banats and Germans. On one occasion my late father obtained three colonies of stingless Melipones from South America for the beekeepers' school at Vienna. In the United States my work has been restricted to golden and leather-colored Italians, Carniolans, Caucasians, Lower-Austrians, and German black bees.

In my experience any variety of *Apis mellifica* (except under an extreme climatical change as in the case of Egyptian bees) with a young and prolific queen, under favorable honey flow conditions, and with the right care will produce a good crop of honey. The differences in productiveness are not conspicuous enough to enable one to speak of a best producing race. The difficulties arise from the other traits such as lack of gentleness, excessive swarming, deposition of propolis, poor wintering, robbing, etc.

Various Races Classified as to Gentleness

The Syrians, Cyprians, Germans and North Africans are most irritable races, and it is doubtful if they should be used under any circumstances. Their stinging makes manipulation almost impossible and keeping bees instead of being a pleasure becomes a torture. Egyptians exhibit the same traits, but they do not form a winter-cluster and perish as soon as cold weather approaches. The Oriental races are very much inclined to rob. This is due to the complete dearth of nectar in the Orient during summer and autumn.

The gray bees (Caucasians, Carniolans, Lower-Austrians, and Banats) are famous for their gentle behavior, but exhibit other traits which are regarded as undesirable by the majority of beekeepers. The heavily propolized hives of the Caucasians have often been the cause of discussion. An instance of the effect of propolization was given by one beekeeper who found it necessary to remove a board from the hive body in order to remove the combs. I have never experienced anything similar. The Caucasians which I had never propolized more than any other race of bees, except for a heavy deposit at the entrance in the fall, nor did I notice an inferiority in productiveness to any other race of bees.

Not to be forgotten is the fact that there are six strains of Caucasian bees, the Ciscaucasians, Abcasian, Mingrelian, Imeritian, Grusinian and Armenian strains, each of which exhibits different traits.

Excessive Swarming a Trait of Carniolans

The Carniolans carry the reputation of having a highly developed swarming propensity, which can not be overlooked nor

easily remedied. Swarm control in an apiary with Carniolan bees will always be a problem; providing unlimited brood-rearing space is not enough to keep them from swarming.

In the summer of 1930 I had three imported Carniolan queens which were started with Italian bees on foundation in April. The rest of the colonies were of Lower-Austrian origin. University duties for ten days in July prevented my visiting the apiary. Although the honey flow did not exceed two pounds a day, the three Carniolans had swarmed. Returning to my apiary I found only weak colonies with a few queen-cells, and two of these three colonies had not even built up their ten frames of foundation. An extensive honey producer with out-apiaries, or a southern queen-breeder or package man can not afford to be steadily on the lookout for swarms, and he may lose the best forces of his colonies, not to mention the exertion of climbing trees. A selection for a non-swarming strain is possible, but the process would take many years.

Lower-Austrian Bee Product of Selection

The Lower-Austrian bee, a close relative of the Carniolan, is a product of selection, descending possibly from the Carniolan bees which were brought by Anton Jansha in 1770 to Lower-Austria. In the north the Sudetian mountain range serves to divide them from the black or German bee, the Carpatian mountains border the east, and in the south and west the Alps divide the Lower-Austrians from the distribution area of the Carniolan and Italian bee.

The Lower-Austrian bee was discussed in detail by my father in the American Bee Journal, February, 1922. As to the distribution he did not mention that it occurs in the provinces of Lower-Austria, Upper-Austria and Salzburg. The name Lower-Austrian bee was applied by Berlepsch who discovered this bee for the first time in Lower-Austria.

At present tribe 47 of the Lower-Austrian bees has become quite famous in Europe. Guido Sklenar, an Austrian queen breeder, produced this strain of non-swarming bees. For many years Mr. Sklenar did not have a swarm in his apiary and all the descendants of the queen from hive 47 show the same quality.

The Banat bee is also a descendant of the Carniolan, and is very similar in traits and appearance. Anton Jansha was likewise responsible for this race. Jansha sent Carniolan bees to the Royal Estate in Godolo near Budapest, Hungary, and from there the swarms flew south across the Puszta (Prairie) until they reached the Banat Hills where they remained and acquired the characteristics of the race as we know it today.

Italians Have Many Good Qualities

It is not necessary to write much about the Italian bee. It is favored by a majority and certainly not without reason. The favorable traits, together with the pleasing coloration has brought this general acceptance. It is true that the gray races of bees are hardier and winter better in cold regions, but the winter losses with Italians are not sufficient to make beekeeping unprofitable. The gray bees might be all right in the north and northwest, but would never do in the south and southwest since hot climate and early flows would cause excessive swarming. In the northern states we can not afford to keep a different race of bees because we would only deprive ourselves of the opportunity to secure early queens and package bees from the South.

The only point to be brought against Italians is their robbing instinct which is certainly a factor adding to the spread of contagious diseases. Since there are many preventative measures for robbing, it is up to the beekeeper to practice them.

Securing Pure Mating Even Though Surrounded by Other Races

We have always enjoyed working with different races of bees and making comparative studies of their behavior and abilities. Thanks to the Dathe method of mating, we succeeded in preventing a certain number of queens from hybridization even while in a yard with several other races. Dathe, a friend of Frank Benton, was one of the first importers of Italian bees to Germany. He reared Italian bees in a location surrounded by black bees, had them purely mated, and shipped his queens to various parts of the world.

His young queens emerged from their cells in small mating colonies, each of which was supplied with an abundance of pure Italian drones. These nuclei were then confined for several days in a dark cellar. After a virgin reached the mating age (six to eight days) the nucleus was removed from cellar after 4:30 P. M., when the general flight of drones had

XUM

ceased. The box was placed with the entrance facing west, toward the sun and the bees were sprinkled with a lukewarm sugar solution. They soon started to fly, the drones began to buzz around, and finally the virgin queen appeared ready to take off for a flight. This usually resulted in her successful mating with one of the selected drones. If the virgin did not mate the first time, the mating box was taken back to the cellar and the same procedure was repeated on the following days until she returned with the mating sign or eggs were found. In the case of the North African bees, we mated 10 out of 12 successfully by this method, an advisable one for breeders of foreign races of bees.

Preference Often Matter of Sentiment

For myself, I prefer the Lower-Austrian bee, although I can not find the Italian bee inferior. This is more or less for sentimental reasons, because the first bees I saw, worked with, and owned were of the Lower-Austrian race. Individual preferences for certain types or breeds occur among all livestock keepers. If any one finds the Caucasian or Carniolan better adapted for his purpose, let him use them, but he is sure to experience trouble in trying to keep them pure.

My father, A. Alfonsus, published a book in 1898 entitled "Das Neue Bienenbuch" (The New Bee Book). Dr. Dzierzon wrote the foreword, in which the following quotation appeared: "In one point I do not agree with the author. In his discussion of various bee races, he does not give good testimony to the Italian bee, by saying that it does not winter well. I have been working more than 40 years with the Italian bee, and on the base of such a long experience, I must declare it the best of all races, the true honey-bee."

Madison, Wis.

Aids to Honey Selling

E. R. Root

The American Honey Institute, Live Bees in Grocery Windows, Roadside Selling, and How to Induce Motorists to Stop

The great and serious problem today is not how to produce more wheat, corn, potatoes, or apples but to know how to sell them. So with honey. If I could tell you how to sell your honey during this depression at good and living prices; if I could tell you how you could meet ruinous competition that hurts you as well as the other fellow; in short, if I had a panacea that would relieve this poor old world of its gloom and its animosities, I might, like Andy Gump, be elected president. While I don't expect to be an Andy Gump, much less a president or a congressman, I can perhaps give a few hints that will help beekeepers to sell their honey and at fair prices. In doing so I shall have to tell some tricks that have been given before. There are some truths that have to be repeated again and again before they finally can be put across.

The Good Work of the American Honey Institute

I am writing this during Honey Week, which is sponsored by the Institute. Several of the big chain stores and many of the independents have adopted the program of the Institute and are now featuring honey. Likewise some of the big restaurants are offering honey and tea biscuits. One large concern purchased a carload of five-pound pails of honey for its Honey Week sales. A chain of restaurants is buying honey in ton lots. On account of the low price, bakeshops have been induced by the Institute to use honey.

Some of the largest food companies, notably the W. K. Kellogg Company and General Mills Company, through their demonstration girls, are broadcasting the merits of honey without a cent of expense to the Institute or beekeepers. The Kellogg Company is sending out tons of literature and display cards on honey to beekeepers without cost. This company supplied its salesmen and beekeepers with 10,000 National Honey Week display cards, and is mentioning the use of honey over 6,000,000 times in its advertising this year.

Mrs. Malitta Fischer Jensen, head of the American Honey Institute, and her

assistant, Miss Taylor, are carrying out, on a greatly reduced budget, a vastly bigger program of honey advertising for Honey Week than was ever attempted before. Mrs. Jensen, in co-operation with the Kellogg girls at the various food shows, has been showing how to use honey in baking and cooking. She and Miss Barber and her assistants of the Kellogg Company are making the housewives think in terms of honey as a sweetening agent.

Right now the American Honey Institute is needing more generous help from the beekeepers. I know that the dollars are scarce; but if honey producers are to protect honey from a further slump, they should by all means support our one and only honey promotion organization, which is doing so much for them. By sending even so small a sum as a dollar in the next mail to the American Honey Institute, 417 North Few Street, Madison, Wisconsin, you will help honey prices to stiffen still more than they have. If every subscriber of this journal will send even 50 cents, it will enable the Institute to tide over a critical period. While you are about it be sure to buy the products of the Kellogg Company, General Mills and others who are helping the cause of honey.

Live Bees at Roadside Stands

Beekeepers can greatly stimulate a demand for honey by placing a single-comb observation hive in show windows. Live bees on the comb are always an object of interest. The public never tires of them. The big and important thing they do is to stop pedestrians and motorists. It is then opportune to get in a sales talk. Honey, produced by bees, can be sold by bees; and they will do it if you give them a chance.

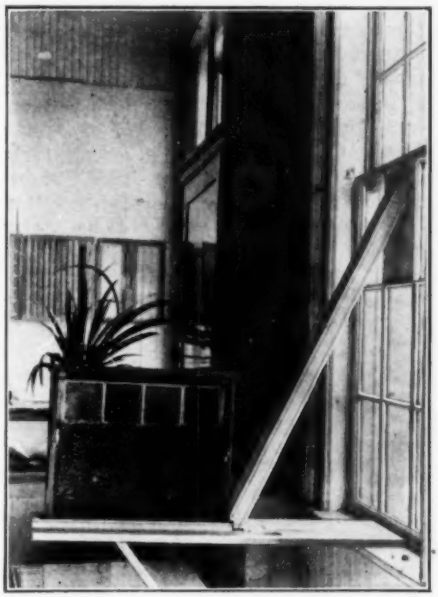


Fig. 1.—Single-comb observation hive with tube at entrance, throwing flight of bees above heads of passers-by.

Bees that are confined for a whole week in a glass hive without a chance to fly

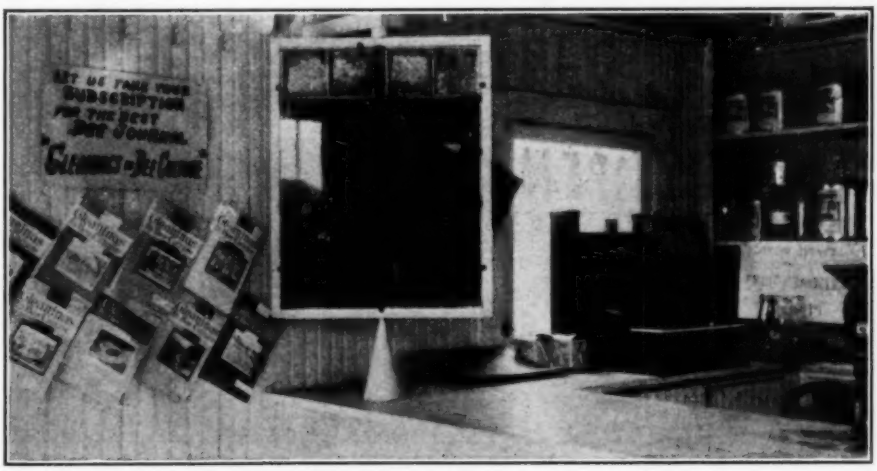


Fig. 2.—Two-comb (one above the other) observation hive pivoted to permit rotating.

will become listless and stain the glass. They should be changed every two or three days, certainly every three days to keep them fresh. Better by far fix up a tube or chute from the entrance to a point at the top of the window sash so that the constant flight of the bees, well above the heads of the passers-by, will keep them fresh. On page 627, October issue, I showed such an arrangement. For convenience, I reproduce it here. (Fig. 1). It has worked most successfully the entire season and it is still going strong at our Medina retail store shown in another article in this issue (page 734).

Mr. Mel Pritchard made for his son's honey stand a very ingenious outfit for showing live bees. It consists of a two-comb (one on top of the other) glass hive mounted between two pivots or bearings, the top bearing being hollow and connecting with a horizontal chute so that the bees can go out and in from the top. (Fig. 2.) It is unique in that the hive can be revolved so that either side can be turned to the light. In this way it is possible to find the queen without disturbing the flight of the bees. The two-story arrangement with the top entrance puts the flight of the bees above the street traffic. In some cases it might be desirable to place the chute or hollow wooden tube on an angle so as to elevate the flight still higher.

The scheme of a revolving glass hive is a good one, better than the one shown in Fig. 1; but, of course, it costs more and it takes a good workman to build such an outfit. The experience of the Pritchards in stimulating sales is the same as at our store; the live bees on display clinch a sale for honey almost every time.

Sometimes a cub bear chained to a honey stand is an effective agent in promoting sales provided signs are put up some distance each way reading "Stop at the Honey Stand 1000 Feet Ahead and See the Bear Eat Honey." Bears can be taught to tip up a small bottle and gurgle down the honey like an old toper from a whiskey flask. The cub will stop the motorists to see the show. Then, if there are live bees constantly fresh, the bees will clinch a good sale. Mel Pritchard and his son, Arlie, are on the market for a small cub bear.

Advertising Signs Calling Attention to Roadside Stands Selling Honey

It is very important to have these signs distributed for a mile or so from the honey stand in each direction. An ideal arrangement is to have one sign a mile back, another say a half-mile, and another 1000 feet from the honey stand itself. The first sign is to get the motorist to thinking, the next is to whet this appetite for honey, and the last is to cause the determination to stop. The bees, the bear and last but not least, a pretty girl attendant neatly attired will do the rest.

The Pritchard Honey Stand on Route 42

The Pritchard honey stand is a com-

Fig. 3.—The Pritchard honey stand between Cleveland and Medina as it appears when approaching from the south.

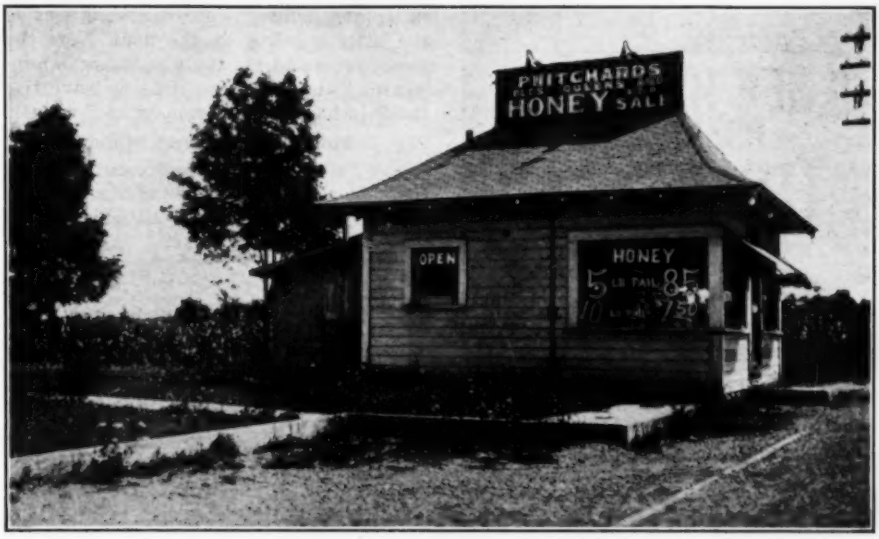


Fig. 4.—The Pritchard honey stand as it appears when approaching from the north.

paratively new structure. The old one, a sort of shed, is shown in the rear (Fig. 3). The new building fronts on a convenient parking space just off Route 42. On either side are flower gardens. Inside there are chairs and luncheon tables on which honey ice cream, honey cakes, and honey crackers are served with soft drinks. (Fig. 4.) As one sits down to one of the tables, the light shimmers through the bottles of honey that are set in the large plate glass windows.

There is no one constantly in the building except on busy days. A sign greets the prospective customer inviting him to "push the button." Immediately a pretty girl comes out of the house. This girl may be the mother or daughter, both of whom know how to tell the story about the queen and the bees. A winning smile causes a bottle or tin of honey to come off the shelves; or it may have the effect that the whole automobile load sits down to honey ice cream, honey candy, and honey cakes. In either case the motor crowd goes away sweetened up for all day. A week or two hence, the memory calls for more honey, perhaps 1000 miles away. The Pritchards are in this way advertising honey up and down a 1000-mile road.

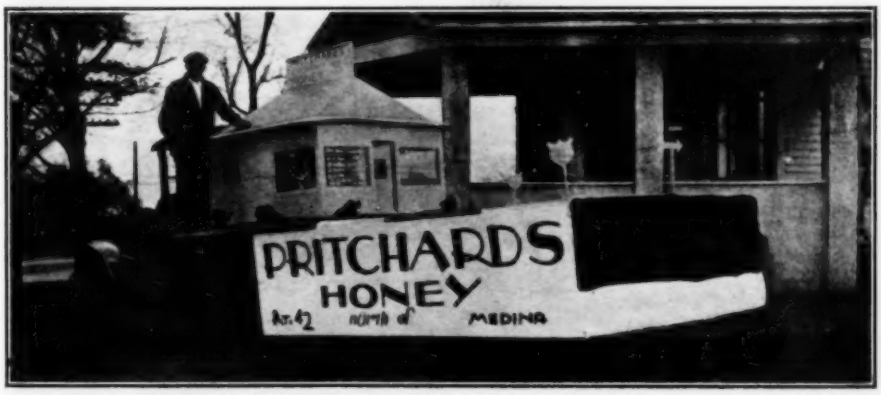


Fig. 5.—This honey float carries a miniature model of the Pritchard honey stand, thus bringing it to the attention of thousands who watched the parade.

Fig. 6.—This mammoth beehive honey sign is so big that motorists can not miss seeing it.

A Honey Float

When this section of Route 42, recently repaved and widened, was completed there was a big celebration. All the towns on this section of the road joined in a big motor parade of floats advertising various lines of business for the towns from Medina to Cleveland. This parade covered the principal streets of Cleveland and, of course, traveled Route 42. In the procession was a float advertising the Pritchard honey stand (Fig. 5.) It consisted of a replica, one-third size, of the structure where Pritchard honey is dispensed, with a reproduction of the three-track paved road in front. Arlie Pritchard stands beside the little building on the float. Note the semaphores and the route numbers in miniature. This, of course, was to advertise the Pritchard honey business on Route 42.

The Outdoor Honey Stands

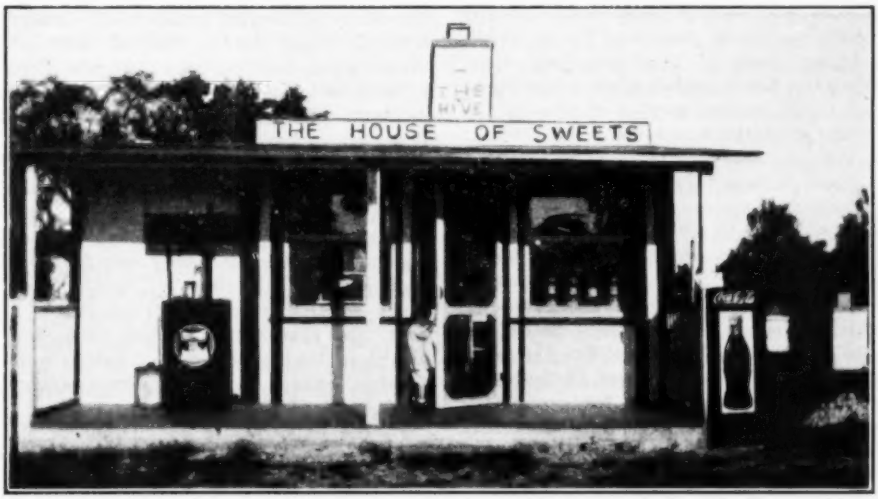
The Pritchard outfit represents the all-the-year-round honey selling stand. On a main highway like Route 42, where there

Fig. 7.—Signs should be scattered along the roadside for some distance from the stand.

are thousands of machines passing, especially on big days, one can put up an elaborate building that can be heated by a small gas or coal stove; but there are other routes where a much less expensive outdoor display of honey can be established. Mr. Edwin W. Selfe of Monroeville, Ohio, has such a stand that is very

Fig. 8.—An outdoor honey stand from which large quantities of honey are sold each summer.

effective. To arrest attention he has novel signs 1000 feet in each direction that are different from anything I have seen. Instead of showing an old-fashioned straw skep, the usual emblem of bees and honey, he shows a picture of a modern dovetailed hive twelve or more feet each way. At a distance it is very striking (Figs. 6 and 7). There are several of these signs, big and little. The one near the honey stand itself has a hive in the rear so great danger to himself and the oncoming automobiles. To drive up the road a half mile to find a place to turn around—well, he will not do it. Let me repeat and make it emphatic that *there is no use putting up a roadside honey stand unless there are also placed "advance agents" in the form of appropriate signs calling attention to the honey stand so many feet ahead.* The motorist is then notified in time and will stop, if he is honey-minded.



A profitable honey stand on one of the main tourist routes in Florida.

placed that the bees go in and out at the entrance of the hive painted on the billboard.

Mr. Selfe thoroughly appreciates the value of advance signs up and down the road each way. Unless there are these "advance agents," if I may call them such, the average motorist will see the sign too late and rush by. With the congestion of traffic he can not now back up without

The Folly of Cutting Prices

It is a mistake to place a honey stand near one that is established and doing a good business. It is poor business judgment and a mean, dirty trick on a fellow beekeeper. The new man will cut prices to draw trade. Stand No. 1 goes one better, and the merry war of price-cutting goes on to the harm and destruction of both.

Medina, Ohio.

Preparation of Liquid Honey for Market

Prof. R. G. Richmond

Proper Temperature and Time to Prevent Granulation and Fermentation

Once upon a time honey was used only as comb honey. Later it was found that it could be strained away from the wax and thus dispense with attempting to use beeswax as a food. It was then taken for granted that this strained honey would granulate. There was no particular objection to this granulation and in some countries honey is still sold as a semi-solid crystalline substance. With the advent of

the extractor, much more honey was produced and the product became an article of trade, locally, interstate, and then world wide. Evils crept into the placing of honey on the market. One of the worst was lack of cleanliness. It was not a pleasant sight to open a pack of crystallized extracted honey and find bees, larvae, and other foreign substances. True, it was probably clean dirt, but far from appetizing. To overcome this evil there came the selling of liquid honey, packing in glass, etc., so that people could readily see the sparkling clarity of the purchase.

After years of this procedure there seems to be dissatisfaction with liquid honey and a tendency to return to the former granulated or crystallized form. It would seem the wise thing to do, at least in part. It is a foregone conclusion that no better honey was ever eaten than properly granulated extracted honey. There is a distinct trend toward granulated honey at present. Being more or less faddists or extremists, it will probably be overdone, which is bad for the business unless the public demand so requires. For the present at least, it would seem advisable to watch closely the trend for granulated honey with one eye, and keep the other on liquid honey, so popular during recent years.

Improper Heating Injurious to Honey

Just why is liquid honey being given the cold shoulder? There must be some good and sufficient reason. There are several, just as several will develop in the resurrection of crystallized honey. Yet, either, properly prepared, is a superb food. It seems that when we begin to play unintelligently with either type of honey, our chances are in favor of spoiling it. But to answer the question, why is liquid honey being given the cold shoulder? A good leg of lamb may be overdone or underdone—so, too, a good batch of honey may be overdone or underdone. That is to say it may be burned, or it may be heated so slightly as to crystallize later in coarse, gritty, unpalatable crystals before it is consumed. Yet, it seems that this need not be the case.

At the request of the late Frank Rauchfuss, in 1929, a series of experiments were started at Colorado Agricultural College, to throw more light on the subject of preparing liquid extracted honey for market. His years of experience in that work left him unsatisfied with the liquid product which he was selling. He never felt quite sure of what to expect when a batch of honey was under heat, in spite of the fact that his knowledge of the subject was surpassed by few.

Time of Applying Heat Important as Temperature

This investigation is far from complete but there seems to be a point or two worthy of mentioning in a preliminary way. It appears not to be generally understood what temperature will do to honey. Much literature is available advising against heating honey beyond 160° F. This advice is good, but far from complete. Honey may be heated to a great many different temperatures with or without injuring it so far as burning or caramelization is concerned. It may be ruined by heating to 140° F., or it may be treated successfully at 190° or 200° F. That may seem more or less of a paradox. But it is not. In making such a statement, only one factor is considered, while there is at least one other equally important. That factor is *time*. The factor of time has been mentioned in literature but in a rather hazy fashion, except in the contemporaneous work of de Boer (1).

In the experiments conducted by the writer, two aims were kept in mind, first, to heat honey without undue caramelization or burning, and second, to delay or prevent subsequent crystallization. To attain optimum results, two factors were borne in mind, the temperature and the time through which the temperature selected, is applied.

High Temperature Not Injurious if Time is Shortened

At the outset, a wide range of temperatures were selected, from 120° F. to the boiling point of honey. More recently these were narrowed to from 140° F. to about 190°, the upper limit not having been definitely established. Honeys may be heated to any one of these temperatures without undue caramelization provided the time through which they are carried at the higher temperatures is carefully regulated. Even at the lower temperatures the time factor is important, particularly with regard to future granulation.

It may be well to understand what is meant by undue caramelization. The writer has assumed that any darkening of honey beyond an increase of ten Pfund-grader degrees is undue darken-

ing of color and there is no occasion to increase the color by even five degrees. Honey may be heated to 190° F. without appreciable caramelization.

From this last statement, it would appear that temperature is a less important factor in caramelization than is time, and so it seems, for we may caramelize honey to ruin at any liquefying temperature if held at that degree long enough. To prove this statement, the following color readings are given of honey heated to 140°. for different periods of time. In each case the Pfund-scale reading followed immediately the time through which the honey was heated: 1 hour, 23.3; 12 hours, 26.4; 24 hours, 30.25; 36 hours, 37.15. These samples were heated and maintained under extremely accurate temperature control, and the color readings were taken by an experienced operator.

Time and Temperature Necessary to Prevent Granulation

The optimum time-temperature is that which will cause the honey to remain liquid until it has been sold and consumed. Can this be done? Yes, but probably not in all cases. These experiments were conducted with this point in view and showed that a mixed alfalfa and sweet-clover honey heated to 150° F. for six hours and darkened but three Pfund degrees, showed no trace of recrystallization at beyond six months. At 160° F. honey held for three hours and darkened by but three Pfund degrees showed no recrystallization at beyond six months. Nor did honey heated at the later temperature for one hour show crystals at six months. Caramelization was less than two degrees, in this latter case. At neither 170° or 180° F. for one hour did caramelization exceed four Pfund degrees nor did crystals show at six months.

These statements must not be construed as being normal for all honeys, the facts seem to indicate the contrary, nevertheless they are indicative. Too, this same honey would be expected to respond differently had its physical condition been different. The honey had not been previously heated, was of fine grain and uniform throughout as to texture, sugar distribution and density. It is to be expected that honey in its second granulation stage, with coarse crystals, would behave differently. This would seem to favor processing at extracting time rather than as needed for market.

Temperatures Necessary to Prevent Fermentation

It would appear that the higher time-temperatures are more desirable. The possibility of fermentation must be considered. The organisms causing this condition are apparently not readily disposed of at lower degrees of heat. Experience seems to indicate that 160° F. will destroy the vegetative active forms but not the spores of the spore forming yeasts. A competent bacteriologist has indicated to the writer that comparative safety might be reached at 170° F. for one-half hour. From the standpoint of caramelization this appears to be a safe time-temperature. The storage of honey following processing may well be understood from work recently done by Wilson (2).

Why not heat honey to a desired temperature and cool it immediately? It will not work with most honey. Crystallization follows too rapidly and lacks uniformity. Even when heating it to 190° F. and dropping down immediately to the safety of 130° F., undesirable crystallization takes place at an early date. Apparently it is necessary to maintain the heat for enough time to melt all crystals before cooling.

Apparatus for Processing Honey

Preliminary efforts have been made to apply practical, workable methods to the idea of time-temperature treatment. A dairy Pasteurizer seems to offer possibilities and has been used. It is standard equipment, available anywhere, easily operated, as rapid as desirable, but needs further investigation. Reseeding of crystals from packing glands and speed of operation of mechanical parts need looking into. Outside of these points, it seems to offer good prospects. One such machine has been installed in Colorado for processing honey.

To recapitulate, the optimum time-temperature seems to be that which is adequate to prevent fermentation, which is economical of time, yet which does not caramelize unduly, but turns out a liquid honey, stable as such until consumed.

Literature Cited

1. De Boer, Dr. 1932. Crystallization of Honey and Heating of Crystallized Honey. The Bee World. 13, 2, 14-18.

2. Wilson, H. F. 1932. The Care of Honey in Storage. Amer. Honey Prod. League, Rept. for year ending Jan. 26, 1932, 48-54.

Fort Collins, Colorado.

From the Field of Experience

REQUEENED AUTOMATICALLY

Conditions Which Induce Colonies to Requeen Themselves Annually

In our apiaries furthest from Medina, where we do not have time for annual requeening, I have observed that, as a rule, those large food-chamber colonies requeen themselves automatically during the fall months. This suits us to a T, because it saves much time and expense. Furthermore, the queens reared under this supersedure impulse are likely to be as good or better than any we might introduce, provided, of course, the quality or stock is right and worthy of perpetuating.

I am not yet ready to go on record as advocating this let-alone system of requeening, but I am saying that it seems to work in our apiaries run for extracted honey. My theory is that a queen that has kept up the strenuous pace of egg laying during the spring and summer, is about ready to take a vacation or stop laying altogether along in August or September. The presence of a food-chamber during the fall months encourages brood-rearing, which, by the way, is quite essential in the fall of the year for producing populous colonies for winter. Any queen that is not able to continue egg-laying is then superseded.

We would much prefer to have queens superseded in the fall than in the spring. When supersedure takes place during the heavy brood-rearing preceding the main honey flow, it interferes with the proper building up of colonies and consequently reduces the population of the colonies.

I would appreciate hearing from others who may be having somewhat similar experiences along this line.—Jack Deyell, Manager of The A. I. Root Company Apiaries.

CHEMISTRY IN BEEKEEPING

The Determination of Beeswax in Candles; Specific Tests for Orange Honey

Francis W. Power, of Fordham University, New York, and Edward S. Hauber, of Weston College, Weston, Mass., describe, in the October 15 edition of Industrial and Engineering Chemistry, a method for the determination of the percentage of beeswax in candles. Their method is based on the determination of the saponification number of the mixtures used.

The authors state that American-made candles commonly contain the following compositions when sold for church use:

	%	%	%	%	%
Beeswax	100	60	51	13	15
Stearic acid	..	20	30	37	15
Paraffin	..	20	19	50	70

A qualitative glycerol test is usually run to determine if any Japan wax is used, from which "synthetic beeswax" may be made which can simulate the ester number of true beeswax. This practice of synthesizing beeswax is not common, however, as it was found in the experience of the authors that candles notably below par in beeswax content, were made so by the addition to the beeswax of unduly large amounts of stearic acid and paraffin, rather than by the substitution of any other ingredients for the beeswax itself.

The blendings of honeys of different colors and flavors, although desirable in the merchandising of a uniform product, sometimes leads to the marketing of cheap or inferior honeys under the name of an established floral source. A method of determining the floral source of honey has long been desired by those actively engaged in selling honey to the retail trade, especially when their product has to come in competition with blends made by unscrupulous dealers in which cheap honeys are used and sold under the name of another floral source. A microscopic examination of the pollens contained in any given blend of honey would reveal the source of foreign honeys, especially if the honey is sold as a domestic product but such an examination is not entirely specific for reasons obvious to those acquainted with the manner in which honey is stored and extracted.

R. E. Lothrop, Bureau of Chemistry and Soils, Washington, D. C., describes a specific test for determining the presence of orange honey in the October 15 number of Industrial and Engineering Chemistry.

His test is based on the detection of the presence of *methyl anthranilate*, the chemical substance to which the pleasant distinctive aroma of orange honey is due. His method permits the determination of the relative amounts of orange honey in blends up to five per cent with a fair degree of accuracy.

The orange honey producers of California will be glad to know that such a distinction can be made.—J. E. Eckert, Davis, California.

FORCED SUPERSEDURE

Prevents All Swarming When Done at the Proper Time

I have been much interested in your articles on the Rauchfuss method of swarm control for comb-honey production, but, owing to the added equipment needed, I never attempted it until this season. Last year I became utterly disgusted with the whole swarming proposition for, do what I could, I always had considerable trouble from swarms absconding and loss from getting the bees back to normal again. Furthermore, this work comes on when I can ill spare the time, for I do not super as liberally as most comb-honey producers, but sort the sections to get comb honey to catch the early market. This means more labor but I find that in my district it pays well.

So last spring I decided that if there was to be any loss I would take it in the early part of the season and have my time later on for taking off and sorting the combs and selling the honey. I experimented with the entire apiary with the Rauchfuss system and numerous variations. While it did not prove entirely successful, I think I have learned that if the operation is done at the right time, it will entirely prevent swarming in a season when swarming is very bad and also give a good crop of honey.

The system must be modified somewhat for our northern clover district where both the honey flow and swarming come on with a rush. If done according to the Rauchfuss system at the beginning of the honey flow, the bees will crowd the brood chamber with honey and are slow to start work in the supers. Thus they are inclined to get sulky and loaf. On the other hand, if done too early, they will crowd the brood-chamber with brood and are likely to swarm.

To be successful with this system, the young queen must have nicely started to lay by the time the honey flow starts. She will then keep the brood-chamber full of brood, thus forcing the bees to carry all the clover honey into the supers where it is wanted. In this locality there is plenty of dark honey to fill the brood-chamber for winter. There is very little possibility of swarming, as before the queen gets the brood-chamber crowded with brood again the honey flow is drawing to a close and the swarming season is well over.

This requeens each colony every year with a young queen, gets all the work of swarm control over before the busy season, and, very important for me, gives plenty of time in the swarming season to go over the colonies frequently to sort out the finished sections and thus get the early market which in this locality is far the most profitable.

I have been so pleased with my experiment this season that I purpose working all my colonies again next year by this method.—G. F. Marsh, Clarksburg, Ontario.

BEEKEEPING SYSTEMS

Elimination of All Unnecessary Labor. Numbering Hive Parts in Disease Control

In the October issue of Gleanings in Bee Culture, Mr. M. J. Deyell states that he is getting so lazy that he has had to devise an easier system of beekeeping, or words to that effect. It strikes me that he has been putting in a lot of hard licks and study, to devise a system so simple; a sluggard would be too lazy even to think of such a system to say nothing of thinking it out.

I must confess, however, that I am getting so lazy that I have been trying for some time to devise some scheme or system for cutting about four hours from my sixteen-hour day and the more I think about Mr. Deyell's system, the more I think of it. I have been working along the same lines but the idea of keeping a super on the parent hive permanently had never occurred to me till I read his article.

I shall try it next season and in addition as a protection against American foulbrood I shall use a numbering system. For instance on No. 1 stand I shall use a No. 1 double-walled hive with a No. 1 super and twenty frames stamped No. 1 in order that at all times I may know in which hives the frames belong. In case of American foulbrood, these combs may be cut from the frames and rendered, the frames boiled in lye, rewired and again filled with foundation. The combs in the upper supers may be extracted, soaked in water, again extracted and placed in a 20 per cent solution of formalin glycerine and water for 24 hours, extracted and placed in a neutralizing solution of 10 per cent ammonia and water for two hours, again extracted and dried, then given back to the bees, after the hive and supers have been thoroughly scorched with a gasoline fire and painted inside and out.

Combs that have never contained pollen or brood may be absolutely sterilized in this manner; there will be no recurrence as I have proven to my own satisfaction after several years of experimenting.

The Deyell system simplifies beekeeping to a point where the major part of the work to produce extracted honey is putting on supers, taking off and extracting the crop.

We winter on the summer stands by using a Sisalkraft hive cover and a snow fence which causes the hives to be covered under deep snow during the severely cold weather.

Thanks for the tip, Mr. Deyell, may you live long to enjoy the fruits of your laziness.—M. G. Eldred, Ontarioville, Ill.

FERMENTATION IN HONEY

A Study of Its Chemical Composition in Relation to Probable Fermentation

Due to the increasing occurrence of fermentation in stored honey, a combined effort by the Bee Division, the Division of Bacteriology and the Division of Chemistry of the Experimental Farm system was carried on to learn if there is any relation between the tendency of honey to ferment and the bacteriological and chemical composition of the honey. In 1929-30 (crop of 1929) 200 samples of honey in duplicate were collected from all parts of Canada—one of each duplicate being stored by the Bee Division to determine its keeping quality, and the other sample subjected to a bacteriological and chemical analysis.

In the Division of Chemistry the following determinations were made: moisture, invert sugar, sucrose, levulose, dextrose, ash, nitrogen, titrateable acidity, and hydrogen ion concentration. The results of these determinations showed that, of all the constituents named, only moisture, nitrogen and titrateable acidity could be considered of any significance in relation to fermentation. For this reason, the 130 samples of honey received in duplicate in 1931-32 (crop of 1931) for further investigation were analyzed for these constituents only.

Table I gives the average composition of the Canadian honeys of the 1931 crop compared with that of 1929:

TABLE I. Composition of Canadian Honeys. Average: Moisture, Nitrogen, Titrateable Acidity. Crops of 1929 and 1931.

	No. of samples.	Crop.	Moist. p.c.	Nitro. p.c.	Titrateable acidity ccs.of.1N NaOH per 100 gm.hon.
Canada	200	1929	18.3	0.038	16.7
Canada	130	1931	18.4	0.033	21.9

The moisture and nitrogen contents are practically identical for both crops but the titrateable acidity in 1931 honey is much higher than in 1929 honey.

In Table II the chemical composition of the honeys is tabulated according to the floral origin.

TABLE II. Composition of Honeys of Different Floral Origin. Average: Moisture, Nitrogen, and Titrateable Acidity.

	No. of samples.	Crop.	Moist. p.c.	Nitro. p.c.	Titrateable acidity ccs.of.1N NaOH per 100 gm.hon.
Clover (including alfalfa)	88	1929	18.2	0.032	16.0
	80	1931	18.4	0.030	21.4
Clovers and flowers exclusive of buckwheat	81	1929	18.1	0.035	16.0
	39	1931	18.1	0.033	21.6
Buckwheat	3	1929	18.7	0.136	29.6
Buckwheat and other flowers.	11	1929	19.2	0.066	22.9
	8	1931	19.6	0.053	26.3

The pure buckwheat honeys of 1929 (unfortunately there were no honeys of purely buckwheat origin in 1931) and the honeys of buckwheat mixtures in both years show a higher moisture, nitrogen, and titrateable acidity than pure clover or mixed clover honeys.

Table III gives the chemical composition of honeys of one floral origin only

(clover) tabulated according to geographical location and any differences which occur must be attributed to geographical distribution alone and not to floral origin.

TABLE III. Composition of Clover Honeys as Influenced by Geographical Location. Average: Moisture, Nitrogen, Titrateable Acidity. Crops 1929 and 1931.

	No. of samples.	Crop.	Moisture.	Nitrogen.	Titrateable acidity ccs.of.1N NaOH per 100 gm. honey.
British Columbia	5	1929	17.5	0.039	22.6
	7	1931	17.5	0.047	32.5
Prairie Provinces	21	1929	17.6	0.030	14.4
	29	1931	17.7	0.025	17.7
Ontario-Quebec.	56	1929	18.4	0.031	15.8
	34	1931	18.9	0.030	21.4
Maritime Prov.	6	1929	18.2	0.034	16.6
	10	1931	19.4	0.033	25.5

For both seasons the moisture content is higher in Ontario, Quebec and the Maritime Provinces than in British Columbia and the Prairie Provinces.

The nitrogen content is appreciably higher in both seasons in British Columbia than in the Prairie Provinces, Ontario, Quebec and the Maritime Provinces.

The titrateable acidity is lowest in the Prairie Provinces and in Ontario and Quebec, slightly higher in the Maritime Provinces, although not significantly so, and highest in British Columbia.

Table IV presents the data for the honeys of 1929 and 1931—those which remained sound and those which subsequently fermented. Samples of the 1929 crop which had not fermented within a year, and of the 1931 crop within five months, were considered sound.

TABLE IV. Relation of Moisture, etc., to Fermentability. Average: Moisture, Nitrogen, Titrateable Acidity. Crops 1929 and 1931.

	No. of samples.	Crop.	Moist. p.c.	Nitro. p.c.	Titrateable acidity ccs.of.1N NaOH per 100 gm. honey.
Remained sound	179	1929	18.1	0.035	16.2
Subsequently fermented ..	21	1929	19.9	0.054	20.4
Remained sound	113	1931	18.0	0.031	21.5
Subsequently fermented ..	17	1931	19.9	0.035	25.2

It is evident from the results of both 1929 and 1931 that, from the chemical standpoint, moisture is the most important factor in causing fermentation. The higher the percentage of moisture the greater the tendency to fermentation.

Nitrogen and titrateable acidity may play a part in encouraging fermentation but these factors are evidently less significant than moisture.—Frank D. Shutt, D. Sc., Dominion Chemist, and D. A. Heron, B. A., Division of Chemistry, Experimental Farm, Ottawa, Canada.

HONEY IN BIG BUSINESS

Honey Candies in 300,000 Stores Remind Public of Goodness of Honey

How would 5,000,000 pounds of candy hit your sweet tooth? Especially if you were a beekeeper and knew that that candy contained a substantial amount of honey? Well, that's the average yearly output of the J. N. Collins Company of Philadelphia, Pa., subsidiary of the Peter Paul incorporation which specializes in fine candies.

Brings honey to the attention of millions.

Collins' Honey Bites and Honey Scotch are the two candies responsible for this big sale. Honey Bites is a relatively new introduction but Honey Scotch has been on the market for 16 years. Both of these candies are among the popular five-cent sellers but differ somewhat from the others in that line as they are not candy bars. Each five-cent package is made up of a number of individual pieces, each piece of which is individually wrapped, and the whole thing presented in a carefully wrapped little box.

They are sold through about 300,000 retail stores located in every state in the Union, in Canada, the countries of South America, Hawaii, and the Philippine Islands. They are often found on the show cases of prominent hotels, on boats, or in the candy collections of "news butchers"

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on the passenger trains. One of the main features of these candies is that they have remained favorites with the candy-eating public over a long period of time. Candy bars, with a few exceptions, are here today and forgotten tomorrow.

One important feature, which should appeal to beekeepers of these products is the prominent place given to the word honey on the display cases. These are attractively made and besides the word Honey the Honey Bites case carries a picture of two bee hives, some bees and some flowers. Certainly this is a fine way of keeping the word honey before the public.

At present most of this company's advertising goes only as far as the wholesaler. However, the representative of the company whom I interviewed, said that they always played up the health value of honey as they believe it to be an ideal sweet, especially for children. The two other feature ingredients of these candies are heavy whole cream and fresh dairy butter. Sounds good, doesn't it?—Robert Mead, White River Junction, Vermont.

BEGINNER SUCCEEDS BY STUDY

Fine Crop of Honey from Package Bees Results from Proper Management

Not discouraged by the failure to secure a crop of honey last season because of faulty management in hiving my first swarm of bees, I began this season by studying carefully my book for beginners. On hand were two empty hives, into each of which I placed a two-pound package of bees with queen. By careful feeding these were built up to colonies of considerable strength, and by the time of fruit bloom they seemed in excellent condition. They were hardy leather-colored Italians.

Once a week the hives were examined to look for queen-cells. With considerable impatience the first clover blossom was awaited, and about a week later the first super was put on the hives. From the first the bees worked with unceasing activity. They never loitered an instant in going in or out of the hive and their numbers increased very rapidly, so much so that the last of May another super was added in order to make the bees more comfortable. Also shade boards were used.

On opening the hive two weeks later, with surprise and delight I found both supers heavy with filled sections. These, when removed, were replaced with new sections. Eighty-six sections of water-white, deliciously-flavored honey, capped with the purest of fine white wax, were taken off the hive.

At this rate it seemed that I would need additional supers. These were sent for, and assembled with little or no trouble. Once a week since I have been taking off filled sections and replacing them with empty sections. One hundred and sixty sections have been removed and there are still over fifty in the hive that will be finished before the end of the season. They are practically finished now.

Is this not a good showing for a beginner and especially for a "back lot" apiary if you can call two hives by that name?

There is an abundance of honey for the family (members of which were very skeptical of my success); and besides, I am retailing some of it to friends and neighbors at a quarter a section. My expenditure at the beginning will be partially covered by these returns, and, last but by no means least, there is the return I received in the great pleasure I experienced in working with the bees.

We are located on the Shore Road, in the Bay Ridge Section of Brooklyn. The hives are protected at the rear and one side by garages and on the other side is a wire fences which seperates us from our neighbors. The hives face west and the vines and trees in the front keep them well secluded from the road.—Adelaide Combs, Brooklyn, N. Y.

SELLING HONEY ON COMMISSION

How and Why the Present Government Market Reports Came Into Existence

Before the days of the Government market reports, we had instead quotations on honey from commission merchants from many of the most important cities. Their quotations often did not reflect the real market price. The temptation was great to quote a little above the market to get shipments of honey. When the beekeeper got his returns less 5 or 10 per cent commission for selling, he found in many cases his honey had sold much lower than the printed quotation given in the bee

journals. Of course, he would complain to us. When we in turn presented the matter to the particular merchant, he would sometimes come back with the statement that the market in the meantime had declined. This would be true in some cases, but often it was not as was shown by quotations from other commission men in the same city.

In other cases the commission man would claim that the honey was of too poor quality to sell at the price quoted and had to sell for less. Sometimes this was true, but often it was not.

Sometimes the beekeeper, dissatisfied with the meager returns on his honey, would go to the city and discover that his honey had been sold for actually more than the price he had been allowed by the commission man; that the "rascal" not only pocketed the difference between what the honey actually was sold for and the price shown in the account of sale, but also had the gall to charge a commission of 5 per cent on top of this.

When the beekeeper got all his data together he would boil over in his wrath and send a few hot shots our way for letting the "rascal" into our columns. He usually did this after he had tried to bring suit only to find that the court costs and attorneys' fees would more than eat up the amount at issue. He was mad all over if not wiser.

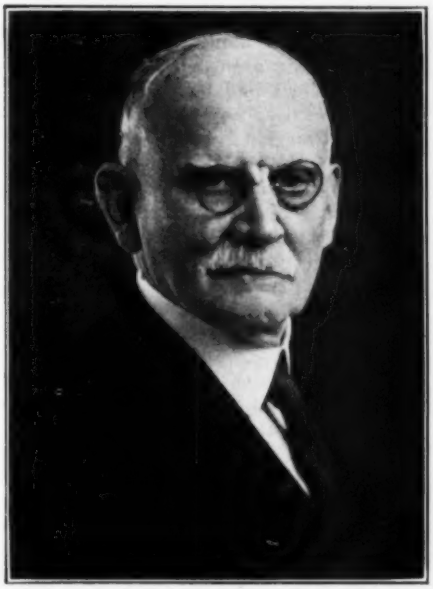
Again, all kinds of job lots of honey that was too poor to sell around home would be rushed to the city. The honey would lie in the warehouse of the commission merchant unsold. Complaint would finally be entered to us that So-and-So was dishonest and should be barred from our columns. In many cases the beekeeper was to blame for sending such poor stuff to the city that no one would buy at any price.

In the case of some of the old, reliable commission merchants, the fault lay clearly at the door of the beekeeper, and when we had to decide against him and in favor of the merchant, we were declared to be just as bad as the city man if not a little worse.

When honey is sold on commission, the city man runs no risk. He is not greatly worried if it does not move and so he lets it lie and perhaps charges storage. The honey begins to leak out of the containers. Perhaps it ferments and bulges out the sides of the cans. It sours and, of course, the commission man is all to blame.

On the other hand, when honey is sold outright for cash the buyer and not the producer is the one to worry if the honey sours, leaks or does not sell. He will get busy and do something. If it is on commission he says comfortably to himself, "I should worry."

The scheme of obtaining market quotations through the various commission houses of the big cities was far from satisfactory. The element of personal bias was such that we came to the conclusion that some other plan of giving market quotations would have to be devised. This did not mean that the commission method of selling was wholly wrong—far from that. Sometimes actually better prices are secured on commission than by actual sale. This is particularly true of honest and reliable commission houses which use none of the methods of the Shylocks in the business.



H. R. Wright, veteran honey merchant, Albany, New York.

What was needed was some reliable way of securing the actual market conditions with the personal element of selfishness or personal bias eliminated. This would help the honest commission man, the honest buyer, and the beekeeper. We accordingly wrote to Dr. E. F. Phillips, then in charge of the Division of Bee Culture in

the Bureau of Entomology, asking if it would be possible for the Buerau of Markets to include honey so he could have actual government figures showing the prices of honey for all the big cities. The North American Beekeepers' Association, the various state beekeepers' associations, particularly the Colorado Honey Producers' Association, through the late Mr. Frank Rauchfuss, and all the bee journals, made a joint request that the Government do something for us. It did, as every one now knows.

I came near forgetting the story of one of the honest commission men who for 70 years has left a clean record for square dealing. If all had been like him, there would have been no complaints of the old system of market reports on honey. I refer to H. R. Wright, Albany, New York.

Recently a letter came from him on a matter of business. In it he incidentally mentioned that he was hale and hearty, going to his place of business every day as usual. This interested me very much, in as much as he said he had been in active business for 70 years. I know that honesty and square dealing has its rewards, but I know also that back of such an unbroken career there must be abstemious living and regular hours.

He writes: "Not total abstinence but moderation in all things" This as he further explains means his eating habits. He adds: "My doctor advises me not to eat sugar or condiments. I substitute honey for sugar and sweets. I know several old men, old as I am, who eat honey in place of sugar. Honey, as you know, is not as popular a food as it should be. More people should be educated to use it."

This kind of advice coming as it does from a veteran of four score and five years means something. The very purpose of the American Honey Institute is to educate people to the use of honey as a food.—E. R. Root, Medina, Ohio.

SPINSTER JANE SAYS—

Merry Christmas to everyone! Yes, in spite of depression, you can make it a very merry Christmas. And how? Just forget yourself, your grouches and worries, your rheumatism, dyspepsia, or high-blood pressure, and help bring a little Christmas cheer, on that good old day, to someone less fortunate than yourself.

Spinster Jane is once more teaching the young ideas how to shoot—or how not to shoot—and has a very real reason for making this appeal. A short time ago, I asked a wee lassie what she wanted Santa Claus to bring her. Her reply was, "There isn't any Santa Claus."

"Oh, yes," said I, "there is." The wee girl shook her head. "I hung up my stockings last year," she explained, "and there wasn't a thing in them on Christmas morning, so I don't believe there is a Santa Claus."

I explained as best I could that it must have been an oversight on the part of St. Nick, and then and there I vowed that home must be visited by Santa Claus this Christmas without fail. What a pity to take that bit of charm and mystery away from the dear little folk, and I am appealing to all honey-folk, to do the same for someone else.

What wholesome sweets can be made from honey!

Let me advise "Lonesome Apiarist" to select the very nicest girl he knows, then send her a jar of his choicest honey, wrapped in white tissue paper, tied with red ribbon, and made Christmassy by the addition of a sprig of holly. He must not forget to attach his card with "Sweets to the Sweet," and ten to one he will not be a "Lonesome Apiarist" many years longer.

There is someone in every community who is without close friends. It may be some grouchy old bachelor. If so, give the poor chap a break on Christmas Day. It may soften his hard old heart so he will pass it on to someone else. Yes, on Christmas we can forget even our grudge against the weaker sex, the men.

We are having mild weather for November, but my bees are in their wintering case, and I am hoping to bring them through the winter without mishap. Only Mrs. Hoover was short of honey. She, poor old dear, was so busy laying up for the young ones, she did not step out until too late to gather in enough for her new store-house, consequently she is being fed honey.

I really believe the only unselfish love in the world is mother love, and even the bees have it. They give all and ask nothing in return; often getting just what they ask from ungrateful young up-starts.

Now once again, a merry, merry Christmas!—Spinster Jane.

Help in the Apiary

When I took up beekeeping, my wife said she wished to help so she could learn to take the helm in case I should be called out of town or was taken sick. As she was very susceptible to stings, she made herself a bee proof suit (or at least what was supposed to be bee proof) consisting of wire veil with blouse attached, knickers, and leggings.

When she came into the yard I noticed she had no gloves. I explained that in the more exclusive bee circles it is not considered good form to appear before cross bees without gloves, and that if she should appear in public among these bees, she would be sure to get smiled at. She replied, "I thought of that but thought it would not be necessary to wear gloves as I expect to keep my hands in my pockets." "And pray, explain how you are going to take care of bees with your hands in your pockets," I ventured. She replied, "Every time I look out I see you with your hands in your pockets so I thought it was the proper thing. I took a lot of time making these pockets for that very purpose."

I have never been able to determine whether or not she meant that for a slam.

We had at that time a few colonies of as ugly bees as I have ever met or that ever met me. They would go through the smallest holes imaginable. It seemed they could stretch out like a fish-worm and make themselves so slender that they could crawl through an eyelet of my shoe.

After making some leather gloves that came above the elbows, my wife announced that if any bee tried to sting her, why it just couldn't be done. In a short time a bee was found buzzing around in her veil. This necessitated half an hour's delay, for it meant a trip to the house and a complete disassembling of the bee proof suit.

Where did that bee get in? It was decided that it had squeezed through an eyelet in her leggings, and, after much crawling had achieved its heart's desire by arriving in her veil. An extra pair of stockings over the leggings put a stop to this.

She had buttons on one side of her knickers and the button holes were rather large. The bees soon learned this fact, and by much pushing could get through and were able to arrive at any destination desired. Zippers put a stop to this. She had pockets in her blouse and she noticed that the bees were continually coming out from under the flaps. Upon examining, we found they were crawling through the button holes, thus getting into her pockets. Next day I noticed she had four extra flaps sewed to her blouse with button holes in them but no buttons. Upon inquiring as to what was the big idea she explained, "Well, those bees are bound to crawl through button holes so I gave them four button holes that lead to no place in

"See that horrid man right between me and my skirt."

particular in order to keep them out of mischief." And yet there are people who say women are not inventors.

It was interesting to watch those bees crawl through the button holes and when they saw it wasn't getting them anywhere they wore a troubled look, much like the pig with which you are all acquainted that crawled through the hollow log to get out of the pen.

I have been trying to learn who owned that pig, and my research has led me to believe that it was one of the shoats Noah had, and that one of his sons discovered where it got out. In honor of this event he was named Ham. Personally I think Bacon would have been better. At any rate the story dates that far back.

(Continued on page 774.)

XUM

From North, East, West and South

SOUTHERN CALIFORNIA. — November finds most beekeepers in southern California with the season's honey crop disposed of, and they now have plenty of time to think things over. The crop has been quite satisfactory, not a big one but all beekeepers got some honey.

In my opinion, a larger per cent of beekeepers sold early or to the first buyer that appeared than in any year of my experience. Two factors entered into this: first, they were almost universally in need of money, and second, their past experience in holding their crop had not in many cases been profitable.

Forest Fires Have Destroyed Thousands of Acres of Honey Plants in Spite of the Vigilance of the Fire Fighters.

Southern California has experienced some very destructive forest fires during the past month. Many thousands of acres have been burned over in northern Los Angeles and Ventura counties. Some of this territory was heavy brush and timber but considerable was good bee pasture which will take many years to again be of any use in the production of honey. Eastern people who live in a country where they have rain every few weeks can scarcely realize how dry and combustible our mountain growth becomes here where there are sometimes six or seven months without rain, or how hard it is to combat a fire once it gets a start in the heavy growth of brush and grass.

Some beekeepers talk about honey production having reached the saturation point. Just what that is, I would like to know. I venture to suggest that few beekeepers have yet reached the limit so far as cutting expenses is concerned. It is my opinion that the fellow who has about the number of colonies that he can care for without any expense for labor and cuts his other expenses to the lowest, will ride through this so-called depression in as good shape and with as little worry as anyone.

Even with the low price for honey, little complaint is heard and few bees are offered for sale. There seems to be little demand for beeswax and price is seldom quoted. Weather prophets are again in evidence. Some say the rains holding off is a good sign of copious rains later on. Let us hope that they are right.—L. L. Andrews, Corona, California.

NORTHERN CALIFORNIA. — When you read this our 43rd annual beekeepers' convention at Riverside will have passed into history. What we shall have done with reference to standardization and certification will be read with interest by beekeepers of United States and Canada. Today, two weeks before the convention, we can not so much as conjecture the course we shall take. We are hoping it will be the best for all of us.

Our State Bureau of Commerce is seriously considering sending one of our best home economic demonstrators and writers East to tell of our fruits and honey, and from indications at this time she will be on her way before December 1.

By increasing the Per Capita Consumption of Honey a Few Pounds, California Would Consume All Its Production of Honey.

Bees are reported in good condition for winter, and while there is little being said of production for next season, very much is said of getting rid of the present crop. Not a day passes without one or more plans being offered at the office of the State Association for a larger distribution of honey in our own state. This is good, and if we can find a way to increase our consumption a few pounds per capita we will not have a pound left over for export. This will be disappointing to some of our eastern friends who are increasing their purchases of California honey.

The season for the northern part of the state has continued a month longer than usual. In fact, in many places honey is still coming in, making it quite easy to introduce new queens. We are pleased to see that this is being practiced more than usual. There is a strong desire on the part of our beekeepers to see an improvement along the line of standardized containers, as well as colors, and this subject will be quite thoroughly threshed out at our coming convention. The state of Oregon has

many problems in the beekeeping industry closely akin to ours and we are hoping that some of our leaders will attend their convention at Portland.

If we are not well represented at the World's Fair Centennial at Chicago, it will not be because of lack of enthusiasm on the part of the State Commission which is doing all it can to create an interest among the beekeepers. The latest reports indicate a growing sense of responsibility and it is safe to guess that the honey interest of California will have its place at the great exposition.—Cary W. Hartman, Oakland, California.

ARIZONA.—The State Fair has just closed. Most of the prizes on bees and honey were won by P. H. Benson & Son, Palo Verde, Arizona. Mr. Benson is one of our state bee inspectors.

Tamarack is still blooming along the Gila River. It blooms over a longer period than any other plant that I know of in Arizona. The honey is amber and sometimes spoils what would otherwise be white honey. It is an advantage through July and August for it blooms when very little else is in bloom.

Rabbit brush bloomed well in many places, furnishing pollen and some honey at the close of the season. Alfalfa seems to be taking the place of cotton in the Salt River Valley.

One of the largest crops of honey produced this season has been sold. Outside of this sale, I have not heard of any other lots being sold. Yet I believe that most of the honey will be called for before the new crop comes in next season. Most beekeepers either have their wax made into foundation or else trade it for bee supplies.

With the general election over, it is hoped there will be a little better demand for honey, even though there is no advance in price.—Leslie Wedgworth, Oracle, Arizona.

WYOMING.—The long dry spell has been broken, but too late to be of benefit to beekeepers. All sections of the state report heavy snowfall during October.

Despite the dry summer and poor honey flow the colonies are in fair condition for winter. An early frost August 29 killed flowers and as a result brood-chambers were lighter than usual. Colonies have been broken open and combs stolen in many apiaries this fall. The experimental colonies of the United States Bee Culture Laboratory were opened on several occasions and protective measures had to be developed. The laboratory staff prepared an unique strap iron device which completely surrounds the hive body. The device was anchored to the bottom and locked with a padlock. The writer followed the same general plan but light log chain was used instead of strap iron. The chain, fastened to the bottom and locked lightly on the top, is effective and adjustable to any size hive.

Honey is moving well on the local markets but the prices are too low. Considerable outside honey has been dumped here and is being sold at very low prices. Truckers are willing to unload honey at any price rather than to transport it back home. This is true of both comb and extracted. Local prices will be better when these "hot shots" are off the market.

A beekeeper from a neighboring town has just completed a house-to-house canvass. He reports many sales at prices above average for local stores.—C. H. Gilbert, Laramie, Wyoming.

UTAH.—Well, here we are at the close of another season, with a demoralized market, a spotted honey crop, but bees in a much better condition for winter than last year. This part of the state had a fine crop of honey. The large buyers this year didn't come forward with offers that producers thought they could take so the honey producers turned to barter as far as possible, to buy what they needed and pay debts. Barter has been carried to such an extent that one finds honey even in clothing stores, and flour mills.

Chaotic Merchandizing Methods Have Badly Upset the Market for Comb Honey.

Carload buyers in the coast cities and the Middle West who used to buy comb honey in car lots were slow to offer any price. So, many producers have taken tons of comb honey as far as 600 miles by truck to supply large dealers, and then have jobbed their honey in the same market and at the same price they sold to the

large buyers. This leaves the buyers with little demand and no show for profit.

This system of marketing no doubt has increased the sale and consumption of extracted honey, but not comb honey. Markets can be overstocked much quicker with comb honey than extracted.

When sales are slow, dealers dread to stock up with comb honey, for fear of granulation. Some comb honey granulates much sooner than others, especially when mixed with sweet clover. I have had pure alfalfa comb honey produced at a high altitude that didn't show granulation in two years.

Even with the poor purchasing power of the country, the fact that so much is used by way of barter, and the further fact that the crop is not large the country over, it looks like we might expect bare markets next year.

The millenium will not come next spring, but as our country and the world emerges from this crisis, we shall see the dawn of a new era in our business as well as all others.

And those of us who take it on the chin, have faith in our bees, ourselves, our God, and our country will again get reward for work well done.—M. A. Gill, Hyrum, Utah.

TEXAS.—In the northern part of the state the weather was very dry in October. Some severe storms occurred which, in some places, did considerable damage to apiaries. The region east of Brazos was visited by some severe weather, but the bees picked up winter stores on composites of various kinds. The dry weather of the south central part of Texas did not bring a flow as was expected. Broomweed and other composites bloomed but there was no nectar. In the low places Verbesina gave nearby bees a good surplus. The scattered beekeepers of Texas west of Uvalde report their bees in good shape with a very spotted crop of honey.

During the month only .55 of an inch of rain fell in the south central district. This accompanied by cool weather caused the bees to make winter quarters early. The first wall of honey surrounding the brood nest is from broomweed and other composites. All bees reported are in good condition with a fine lot of young bees with which to go through the winter.

The honey plants are in good shape. Already horsemint and some of the other winter annuals are up. A dry fall is always looked upon in the huajillo-catsclaw country as a good thing as it keeps those plants from blooming before the bees come out of winter quarters.

Enough Honey Was Gathered from Bitterweed in Some Localities to Spoil the Crop.

A new bitterweed has come to light in Texas. At the present time this makes three weeds of the same name which are of great interest to agriculture. The first is well known as the bitterweed of east Texas, *Helenium tenuifolium;* the second is a weed which has become famous throughout the range country during the past three or four years as being poisonous to cattle. It is known as *Actinea odorata;* the third one which has just been reported, *Helenium elegans* is called sneeze weed and is a very close kin to the bitterweed of east Texas.

These peculiar periodic heavy bloomings of composites are very interesting. This year the two Verbesinas bloomed during a period of over a month and in great abundance. This is the first time in ten years that this plant has bloomed in anything like sufficient quantities to be noticed.—H. B. Parks, San Antonio, Texas.

KANSAS.—Beekeepers this fall are leaving more honey than usual with the colonies. Many feel that they are going to give the bees a better chance next spring considering the retail prices of honey at the present time. This will be the first time for many, many years that beekeepers have left on the hives sufficient honey to carry the colonies through until the next major honey flow.

Beekeepers are making an added effort this year to sell their crops. Many have made contact with bottlers who have been buying honey from other sources in the past. This is due to the fact that there is a greater quantity of honey of good quality available in this region this year.

Honey has been moving slowly from the hands of the commercial producers, primarily because there is some extremely low-priced honey coming in from farmers. Undoubtedly when the weather becomes colder and this farm honey is dis-

posed of, there will be a better demand for honey.

Branding Hive Parts With a Branding Iron Should Cause a Thief to Hesitate About Stealing Supers of Honey or Colonies of Bees.

It seems that if apiary equipment has some identification mark, it causes people to think twice before they molest it. In the case of colonies stolen from J. L. Byer of Ontario, Canada, mentioned in the November issue of Gleanings in Bee Culture, page 701, a marking on the outside of the hive which showed through a coat of paint, was the undoing of the robber. If beekeepers would mark their frames, hive bodies and supers, there would be little trouble from people trying to rob apiaries of whole colonies or supers of honey.

Some beekeepers use a branding iron which brands in a name by burning. It is rather difficult to cover up such a brand when it is forced into the wood of apiary equipment. Such branding irons have been obtained from mail order houses at a rather nominal charge. All that is necessary for using such an iron is a small bonfire or a blowtorch.—R. L. Parker, Manhattan, Kansas.

NORTH DAKOTA.—By the time this report is printed, most beekeepers of this area will have their colonies put away in winter quarters. Due to the tapering off of the honey flow earlier than usual, many a North Dakota beekeeper found to his disappointment that brood-chambers were not provisioned with honey. More than one beekeeper has told me that the early fall examination of his colonies showed the brood-chambers to have less honey than had ever been the case in previous years.

Experiments in Outdoor Wintering at the North Dakota Experiment Station Will be Continued This Winter.

Following last year's outdoor wintering experiments with balsam-wool insulation, the North Dakota Experiment Station is again testing this and other modern insulation for packing hives. Hives of bees wrapped with half-inch balsam wool, additionally protected by a layer of tarred paper on the outside, came through in excellent condition at Fargo last year. On April 16 an examination showed an average of brood in four combs for each of the colonies packed in balsam wool whereas the cellar-wintered colonies had an average of brood in but two combs per colony. Weighings on November 5, 1931, and April 16, 1932, of the outdoor colonies packed in balsam wool and cellar-wintered colonies showed that the latter had lost an average of only 15.9 pounds in weight, as against an average of 27.15 pounds for the outdoor-wintered colonies. Whether or not the better condition of the outdoor-wintered colonies compensated for the extra amount of stores consumed was not apparent from the standpoint of honey production this past season.

With the season of beekeepers' short courses and winter meetings of beekeepers' associations approaching, beekeepers everywhere are looking forward to spending their time to good advantage by attending as many of them as possible. The benefits to be derived consist not only of the valuable information to be gleaned, but also of the contacts made with others in the same line of work. The North Dakota Beekeepers' Association will hold its annual meeting in conjunction with the winter short course in beekeeping at the North Dakota Agricultural College, January 18 and 19.—J. A. Munro, Fargo, N. D.

MINNESOTA.—During the past 10 years Minnesota has passed through a series of very dry seasons. According to figures given out by the weather bureau, the deficiency in precipitation from January 1, 1922, to October 1, 1932, is 25.1 inches, or practically a whole year of normal rainfall. With the exception of 1928, every year of the last 10 has added to the moisture deficiency.

Some Peculiarity of the Season Caused Bees to Refuse to Draw Out Foundation, Although in Need of Room.

I have heard more complaint about the failure of package bees and southern queens this year than any other year in my experience. In addition, I have never seen a year in which bees, either packages or overwintered colonies, were so reluctant to draw foundation. In many cases I saw full hive-bodies of foundation stay for weeks in crowded colonies between

two supers that were plugged with honey, yet the bees refused to draw the foundation. Frequently the colonies would swarm rather than do so. As a rule, package bees take readily to foundation, almost as readily as do swarms—so much so, in fact, that some beekeepers have stated that package bees do better when they are given some foundation to draw.

There was an unusually high percentage of supersedure of queens which came up with package bees, and a high percentage of loss in introducing other queens. I saw yards of approximately a hundred colonies established with package bees in which more than 50 became queenless or the queens were superseded. Ordinarily one is safe in assuming that about 90 per cent of the packages will remain queen right through the season.

Minnesota beekeepers took an active part in National Honey Week and are enthusiastic over the work of the American Honey Institute. The Minnesota Beekeepers' Association held its annual convention at University Farm, November 14 and 15. This was followed by a Beekeepers' Short Course at the Agricultural College, November 16 to 18. Jay Smith assisted both in the convention and short course.—M. C. Tanquary, St. Paul, Minnesota.

MANITOBA.—At this date, November 10, we are having the first real taste of winter. Last Friday and Saturday were good flight days which were badly needed by the bees before storing time. The past two or three weeks have been cloudy and too cool for flying. Yesterday the wind turned from the North, and when we awakened this morning there was six inches of snow, and it is still falling.

The honey crop reports are not all filed, but enough are in to show pretty well where we stand. The aggregate crop will fall far short of that of last year.

Buyers Are Active in Picking Up Honey in Producing Districts and Assembling Carload Lots.

The demand for honey has been good and nearly all our carload shippers are either sold out or are holding with the hope of prices being higher in the spring. Grocery brokers claim to be heavily stocked but they are still buying and going far out of their way to secure further stocks.

Our producers have enjoyed services this year that never before were accorded them. The grocery brokers have sent their men out into the producing districts and assembled carloads of honey. I read in a local country paper this note: "There are five local residents who have each shipped out a carload of honey. The sales are made through a Winnipeg brokerage firm and most of the honey has gone west."

Our markets have widened greatly. I have reports of carload shipments to nearly every province except the Maritimes that have been made this fall. The latest report came to me from Brother Pineault of St. Joseph's Orphanage, who states: "I am glad to report to you that we have shipped a carload of honey to Montreal to the satisfaction of both parties. Our second carload will be shipped soon, probably to British Columbia."

Since beeswax has gone down so low in price, new foundation mills are coming into this province. One man reports that he made 6000 pounds of comb foundation on a hand machine last year and it gave very good satisfaction. He is sending to Germany for a second machine for this year's work.

Since most of our producers have sold out at prices which show much better profits for labor than other farm products, plans are now being made for further increase for next year.—L. T. Floyd, Winnipeg, Manitoba.

WESTERN OHIO.—The season of 1932 in northwestern Ohio was more favorable in many ways than that of 1931. Bees are in better condition than I have ever observed them to be at this time of the year. Colonies are strong in bees and well provided with the best of stores.

Honey plants are in good condition. Up to this date (November 7) there has been no killing frost. Sweet clover is still in bloom and on nice days bees are bringing in pollen and nectar.

We have finished packing for winter. About 1000 of our colonies were left with a full-depth super of honey, about 50 pounds in each hive. We left 100 colonies in single hive-bodies. We never did like to winter bees in two hive-bodies, but it surely is quite a task to shake out the bees from 1000 second stories, then get them

ready for winter. So we left them in two stories. This will also save work in the spring, as the colonies will not become crowded for the want of room and contract the swarming fever. Also they can be left in the packing cases until settled warm weather, which is quite an advantage.

Beekeepers are faring about as well as those in any other business at this time. About all the honey has already been sold but the price was rather low. Taking it all in all, beekeepers are faring well considering the depression. We are looking for a brighter future.

Some of our beekeepers are going to the Sunny South this winter. I am planning to spend the winter in Florida again this year. — Fred Leininger, Delphos, Ohio.

NORTHERN INDIANA.—There was an exceptionally good honey flow from goldenrod this fall and the honey is lighter in color and of finer flavor than usual. The total amount of honey produced in the year 1932 is about normal. Prospects are good for white clover the coming season as fall rains have been ample and more clover plants are showing up than for several years.

Honey, this year, is being sold largely by house-to-house canvassers. The sales apparently are being helped by the more extensive advertising over the radio and otherwise. Honey-butter is advertised on the air by certain firms and in local newspapers, and the work of the American Honey Institute is having an appreciable effect. Prices are exceedingly low, lower, in fact, than at any other time in the last thirty years. It seems, however, that beekeepers are anxious to get the crop off their hands at any price in order to obtain a little ready cash.

Wax Moths Were Unusually Destructive During the Past Summer. Is This a New Kind?

Moths have been more destructive in this locality than they have been known to be for many years. Ordinarily, where combs are properly cared for, few bee moths are ever seen in our yards, but this season it seemed difficult to keep them out of stored combs and many such combs were destroyed when off the hives. Others report similar difficulties. I do not claim to be skilled in entomology, but the moth appeared to be of a species different from any observed heretofore. They were of medium size with light silvery wings and brown thorax. A few of the lesser moth also were observed as well as some of the large gray ones. The latter often may be seen between hive covers in late fall.

American foulbrood in this section is decreasing, due, probably, to the greater co-operation of leading beemen and to the greater prevalence of burning as a "cure," both by the inspectors and the beekeepers themselves. I believe that the disease can be eradicated when beekeepers realize that burning is the only effective means of complete eradication in any locality where the general run of careless beekeepers is found.—E. S. Miller, Valparaiso, Indiana.

WESTERN NEW YORK.—October was a rather cool month with but little activity on the part of the bees. The first few days of November have been very pleasant and moderately warm, and bees have been flying freely.

A Heavy Fall Honey Flow Has Greatly Depleted the Number and Vitality of the Bees That Will Form the Winter Clusters.

A month ago colonies were of enormous size. The heavy honey flow from wild yellow sweet clover, goldenrod, and buckwheat during August and September evidently aged the bees considerably. Now colonies do not average above normal-sized clusters with very heavy brood chambers, being almost entirely filled with honey. This has curtailed late brood rearing to a great extent.

With bees aged by work and the early restriction of brood-rearing, I shall not be surprised to find many small and weak colonies next spring. Yards located in Livingston and Cattaraugus counties are exceptions to above conditions. In these instances there were light fall flows.

New clover seeding all over this end of the state is in fine condition and in many localities it is very abundant.

Wholesale honey markets are very dull especially so on comb honeys. Some chain store buyers have bought at prices that have hardly covered the cost of sections, foundation, and cases. Our own retail

sales are increasing each year. This year we are selling more at retail than ever. Consumers have carried away tons in their own containers at 10 cents a pound for the best grades.—H. M. Myers, Ransomville, N. Y.

ONTARIO.—Another month of fine weather has passed, and bee work in general has been pretty well attended to. For the past three days heavy rains have fallen and the ground is thoroughly soaked. We may look for a "freeze-up" any time now, for after November 10 in this latitude we can not expect much warm weather for a while. However, for the past few years our late fall weather has been above the average in temperature, and I believe the local weather bureau's records show that the general winter weather has been milder as well.

What clover we have is looking very well indeed, but prospects are not good locally for clover honey in our locality. As the market for sweet clover and alsike seed is paralyzed, naturally farmers are not growing much at the present time. This year there were many volunteer crops of alsike. In other years these fields were generally left for seed to be harvested the following season, but I am sorry to see that most of the fields of alsike, which would be here for seed and honey next year, have been plowed down this fall.

Recently I read an article in an agricultural department of a great daily paper, in which a warning was issued against going out of alsike entirely as many farmers, who formerly raised it each year, are doing. While admitting that the U. S. tariff against our alsike seed is prohibitive, the article states that a good European market is being developed and that it looks as though this market would soon be able to care for Ontario's surplus production at fair prices. While this is something to be hoped for in the future, prospects are anything but bright for growers of the seed at present.

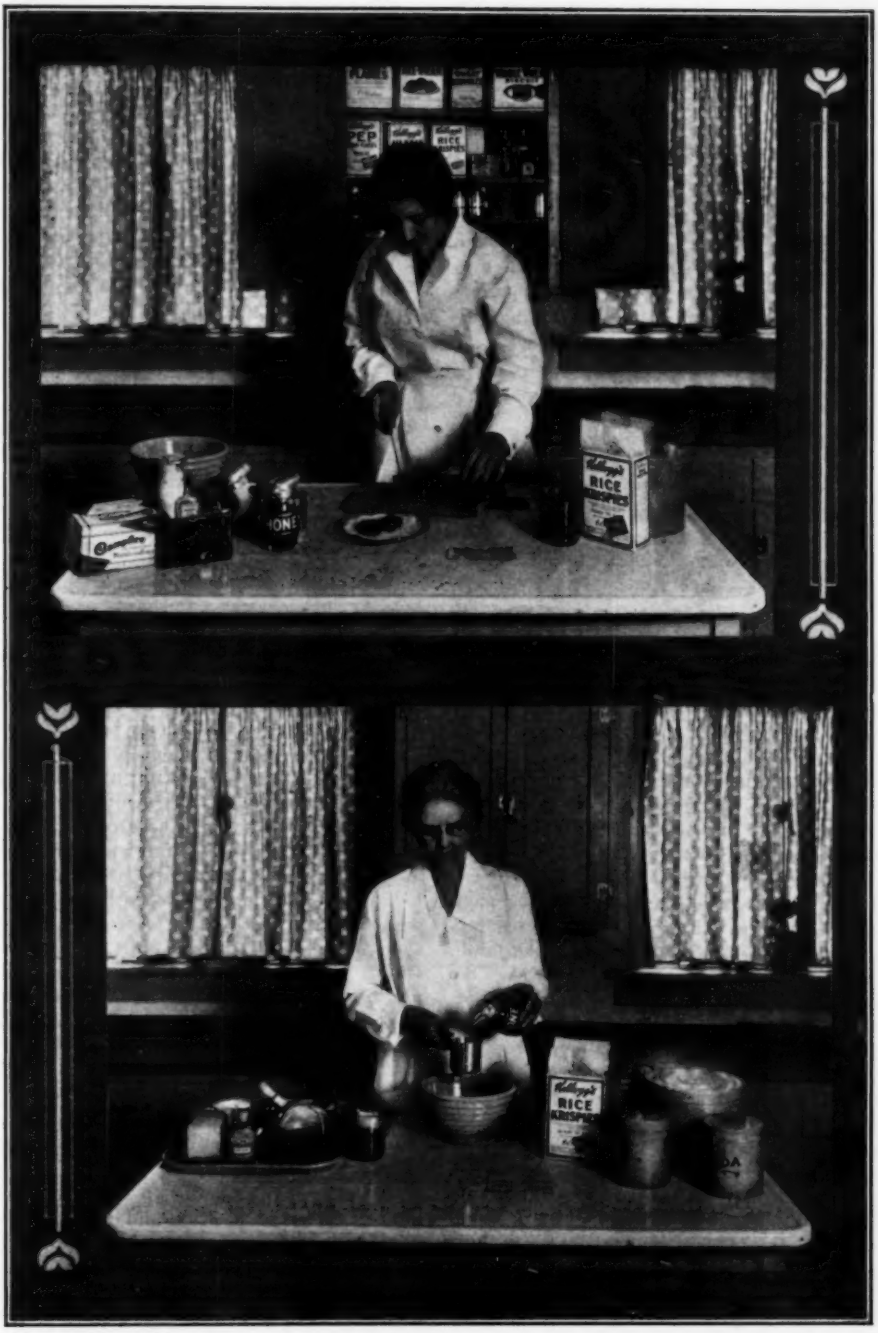
Dealers in honey, both retail and wholesale, seem to agree that the demand for our product, while rather slow, is steady and at prices if anything a bit higher than a few weeks ago. The opinion is general among dealers, that honey is bound to increase in price in the near future as so much is being exported.

The Ontario Marketing Board has appointed a representative who has gone to Great Britain to devote his whole time to selling and advertising Ontario honey. Those who export their honey to this representative, are charged a certain sum to help defray necessary charges, and the balance needed to make up any deficit that might be incurred will be cared for by the Board for the first year at least. Latest news letter from the Secretary of the organization states that a contract has been signed with a well known firm in Great Britain for the handling of an immense quantity of honey. This firm handles the honey in all stages, including bottling, and guarantees a minimum price for all the honey it packs.

Large Quantities of Honey Are Being Exported to Great Britain, Thus Relieving the Domestic Market of Much of Its Surplus.

Under the new Empire treaty, all honey from Empire sources will enjoy a preference of 7 shillings per cwt. (112 pounds). While this new marketing plan for Ontario is yet in its initial stage, there is no question but that it is being enthusiastically received by many producers. As a result practically all the independent producers who have carlots are shipping to Great Britain. I know of five carloads that will leave Ontario during the next two weeks and there may be some I have not heard of. With all this honey leaving the country, local supplies are sure to get low as wholesalers are not loaded up with large reserves as was the case some years ago when many purchased largely as soon as the new honey was available.

Before this will reach the reader another annual meeting of the Ontario Beekeepers' Association will be a thing of the past. Large crowds have usually attended these meetings, but it is quite natural to expect fewer present this year as the depression has hit the beekeepers as well as all other producers of primary products. However, we may be surprised at the attendance; with so much fine weather during the fall, all work will be done with the bees, and it will be easy to get away from home. And, as has been stated scores of times, beekeepers are proverbially an optimistic bunch and they usually visualize the big crop and good prices of next year rather than the poor crop and low prices this year.—J. L. Byer, Markham, Ontario.



HONEY IN KELLOGG COMPANY'S HOME ECONOMICS DEPARTMENT

Upper: Miss Helen Pickard, member of the Kellogg Home Economics Department, cutting the Honey Krisp Roll. Lower: Mrs. Ida H. Cornforth, member of the Kellogg Home Economics Department, making Kellogg's Honey Krisp Cookies.

Food Department

Malitta D. Fischer

Homemakers, Holidays and Honey

These three go together and Christmas always finds the homemaker busier than at any other time. Holidays and home baking just naturally go together and the homemaker who does not make up some of the interesting old-fashioned cookies, fruit breads, and plum puddings our grandmothers made, misses half the fun of this gala season.

Christmas cakes and bread are largely the outgrowth of superstitious customs or religious worship. Although most of these customs have been forgotten or are followed now because they carry a certain sentiment, the breads and cakes and cookies themselves have come down to our day. Each country has its own particular feast cake, and, because the United States is a melting pot of nationalities, we have inherited the traditional cakes of all. Lebkuchen, springerles, cinnamon stars, edenbokers and the like or perhaps short bread, pfeffernusse and braunschweiger—may be our choice for holiday cookie making.

Holiday suggestions for the kitchen are fascinating but the most interesting part to beekeepers is the fast increasing amount of honey being used in the making of the holiday cakes and cookies. The old recipes used honey and that part of the recipe is now being revived.

More homemakers request honey recipes for holiday baking and candy making in October and November than at any other season. They know that Christmas cookies, to be really the best, must be aged; that's because they are made with honey. They are interested too in getting their baking out of the way just as soon as possible and they are fast learning that when they use honey, they can do the holiday baking anywhere from six months down to a month in advance.

Am I taking too much for granted when I say every beekeeper's wife who serves fruit cake has already made her fruit cakes with honey? I hope not, for a honey fruit cakes to be properly ripened should be made at least two months before Christmas. There are many honey-fruit-cake recipes available now and most of you have your own pet one. I like to allow my dried fruit to soak in honey about two weeks before combining with the rest of the ingredients. Thus I think I get better flavor. If you want the recipe I use, I shall be glad to send it to you.

You are going to make cookies or perhaps you have them made. Your fruit cakes we'll say are all made. Your cookies are either made now or you will bake them up the first week in December—no later than the second week unless they are some honey butter cookie mixture you prefer to make just two weeks before Christmas. Such a cookie is the honey pecan or honey almond finger.

Candy making should be a part of your holiday preparation. Perhaps you want to make up extra candies for gift packages. I think they are so nice and I am sure your friends agree with me that there is no gift so valued as that created by the donor. Our desires as the holidays draw near is to remind our relatives and friends that we are thinking of them and to wish them well. This desire is manifested usually by a gift or greeting card. You know from your own experience just as well as I know from mine that the gifts we remember the most have been home-made ones. I recall one Christmas a large shoe box full of cookie dolls, all types, Dutch girls and boys, Santa Claus, animals and what-not—all cut out of the old-fashioned German Lebkuchen dough that grandmother used to age months before she baked it up. I see those dolls many times and wonder how so many twentieth-century homemakers can deprive their children of the great joy they get from shaped Christmas cookies.

Try this year to make up boxes or baskets or assorted cookies and candies for your youngsters, nieces and nephews or grandchildren. Let them help you cut out the figures. One of my happiest reminiscences is going over to Grandma's house and helping her make cookies for Santa Claus. And she made them not just in one or two dozen lots but by the hundred.

There's no end to the attractive honey

holiday boxes you can make up. This year, instead of fruit cakes made with honey and candies made with honey, I am using plum puddings made with honey and orange marmalade made with honey for my holiday packages. I usually send these boxes to a few of my friends who have several youngsters in the family. Two years ago honeyed popcorn balls and two-ounce jars of honey were included in the assortment of fruit cake, candies, and cookies as special items for the children. This year I want something different so I plan to bake the plum pudding in a Pyrex baking dish and leave it right in that dish. After cooling I'll seal the glass cover with paraffine, wrap the dish in cellophane, and send baking dish, honey plum-pudding and all in the Christmas box. That will be the gift for the Mr. and Mrs. of that family. Then for their older daughter, Marguerite, just nineteen and inviting friends in for an occasional Sunday night supper, I'm including a squatty stippled honey jar holding about 12 or 13 ounces of homemade honey-orange-marmalade. For Bill and John and Little Sister there'll be honey-krisp bars, home-made honey cookies and an individual tube of honey for each. And I almost forgot to add a glass jar of honey butter. I want them to serve their honey plum pudding with honey butter instead of the proverbial powdered-sugar hard sauce.

Another box that I plan to pack will include in addition to the honey plum pudding, a quart size jar of honey pear pickles and a pair of pure beeswax candles. I like the new beeswax candles so much and the old auntie in this family will like them too. She has a fondness for candles and does not know about the new beeswax candles now available. I know she will enjoy them because everybody who tries them does.

Then I have a friend who teaches school. She has been admiring my Hansel and Gretchen so much. My Hansel and Gretchen are carved out of pure beeswax; they are so clever—Dutch features, wooden shoes, Dutch hat on Gretchen and balloon pants on Hansel. I wish I could do things like that. Perhaps you can do them but have not tried carving your beeswax to see what you can do with it. My Dutch pair were sent to me by the Sisters of St. Benedict, and I hope the member of their school who is gifted with the art for doing such work will have time to make a number of Hansels and Gretchens. Have you thought how thrilled some of your friends might be with a home-made beeswax model of some kind?

These are the types of holiday gifts that make a fine Christmas. Every beekeeper should give some gift (whether it be a five or ten pound pail of honey, a 60-pound can, some honey-baked item made by his homemaker, some beeswax model carved by his older son or daughter, or even a half dozen cakes of comb honey festively wrapped) that reflects the fascinating life work of the honeybee.

You may wish to make up some honey plum puddings or some of the orange marmalade for your own family if not for Christmas gifts. Here are the recipes:

Honey Plum Pudding

1 cup grated raw carrot, 1 cup grated raw sweet or Irish potato, ½ cup chopped dates, ½ cup dried apricots (chopped or ground), 1 cup seeded raisins, 1 cup honey, ⅔ cup suet (chopped or ground), ¼ teaspoon salt, 2 teaspoons cinnamon, ½ teaspoon nutmeg, ½ teaspoon allspice, ¼ teaspoon cloves, ½ teaspoon soda, 1 cup flour. Combine ingredients in order given. Stir until mixture is well blended. Pour into one well greased baking dish. (I use 1-quart Pyrex casserole), put cover on and bake in oven at 250° F. (moderate oven) for 2½ hours. Remove from oven, cool without removing cover. I prefer this method of baking to steaming. Serve with honey butter.

Honey Butter.—Blend ¾ cup finely granulated or creamed honey with ½ cup butter. Let butter stand at room temperature for ten minutes, so that it blends more readily. If liquid honey is used, use same proportions, beating the honey first with strong double-ball-bearing type of egg beater, then blend with warm butter. Pour in glass jar, screw cap on jar and place in refrigerator or some place where temperature is 55° or lower. Honey butter must be tightly covered and kept in the refrigerator just as you keep butter.

Another method for making honey butter is to place both honey and butter in upper compartment of a double boiler and beat until thoroughly blended, then pour in glass jar which can be tightly covered.

Quick Honey Orange Marmalade

3 medium-sized oranges, 1 cup water, 6 tablespoons lemon juice, 2 cups honey, ¼ cup liquid pectin. Run the oranges through food chopper (fine knife). Measure and you should have from 1¾ to scant 2 cups of the ground orange (skin, pulp and all). To oranges add the water and allow to simmer 15 minutes, bringing to a good boil first and then turning flame down so it will simmer. After 15 minutes of simmering, add the honey. When it comes to a boil, simmer for 30 minutes. Add lemon juice, the liquid pectin (I used Certo), and bring to boil, allowing to boil just one minute. Remove kettle from fire and skim by turns for about 5 minutes. This slight cooling will prevent floating fruit. Pour quickly in sterilized jars. Paraffin lightly hot marmalade at once and then add more paraffin after marmalade has cooled. Makes about 6 eight-ounce glasses.

And here are two good confections for the youngsters:

Chop Suey Lolypops

Run any dried fruits through food chopper—prunes (uncooked), apricots (uncooked), dates, figs, raisins, peaches or pears. A very good combination is ¼ cup prunes, ¼ cup apricots and

(Continued on page 774.)

Clouds and Sunshine

(Continued)

After the appearance of the bear in Anthony's apiary he spent a rather sleepless night. At 2 o'clock in the morning, old Spot began barking. Anthony got out of bed, peered through the window, but could see nothing.

Next morning, at daybreak, after eating a bite of breakfast he started for Struthers to see Mr. Bright. As a rule, Mr. Bright was an early riser but this particular morning Anthony found him in bed. In fact, he did not realize how early it was. Bright was indeed surprised to see him at such an early hour and inquired immediately what had happened. Anthony proceeded to relate the story of the black bear and asked for advice as to what should be done.

Mr. Bright suggested setting a bear trap. Anthony said he had thought of that. Bright thought it was doubtful if a bear trap could be purchased in Struthers. I was finally decided that they would send off to Sears, Roebuck to get one. In the meantime, Anthony would be on his guard to protect his apiary against another visit from the bear. He wondered if the bear might take advantage of his absence while he was away in the day time. Mr. Bright rather thought the bear would confine his visits to the night in which event old Spot would be on hand to warn Anthony of the bear's approach. Later on after the bear trap would be set, Anthony would keep Spot in the house during the night so as not to scare the bear away, and thus there would be a greater likelihood of catching him.

The men decided it would be a splendid idea to call on the suspicious character that forenoon, so their visit was definitely planned for about nine or ten o'clock. In the meantime, Anthony had some business to transact uptown while Mr. Bright was eating breakfast and finishing up some work around home that he had started.

When Anthony returned from uptown he was looking around Mr. Bright's apiary and noticed a great many two-story hives. He inquired of Mr. Bright whether or not all of the surplus honey had been removed. Mr. Bright assured him that it had and that he was wintering most of his colonies in two-story hives. To Anthony this seemed uncalled for. Bright explained that he wanted to have every colony in his apiary supplied with an abundance of stores for winter and spring. Anthony said he had taken honey out of the brood chambers of some of his hives in order to supply other colonies that did not seem to have the necessary amount of stores. He also assured Mr. Bright that the colonies he had divided rather late in the fall appeared to be in good condition, and he believed they would winter successfully. Mr. Bright said little. In fact, he knew that it would be useless to make any comment on Anthony's apiary management. Time would tell whether or not these small colonies would be alive in the spring.

Anthony made some further inquiries regarding the two-story method of wintering and Mr. Bright explained that he wanted all of his colonies boiling over with bees the following spring. Also he wished to get away from labor in manipulating the hives. He tried to explain that one good, strong colony in the spring would be worth more than three or four moderate-sized colonies, also that one very populous colony ready for the honey flow would store more surplus honey than half a dozen weak colonies.

Anthony seemed to think in terms of hives of bees, whereas Bright had in mind only very populous colonies that would be profitable from the standpoint of storing a big crop of honey.

The time for visiting the suspicious character came and the men started off in Mr. Bright's car. Not being acquainted with the person they were about to meet, they wondered what excuse they could make for calling. Both men felt somewhat shaky when it came right down to making the visit.

As they drove up to the old shack they noticed signs of life. A few chickens were running about. The bees were still there. In fact, the apiary seemed to have grown since last they saw it. As Mr. Bright was about to knock on the door, a dog rushed out from underneath the shack and would have become attached to his ankle if he had not make a quick move.

A. N. ONYMOUS.

(To be continued.)

Just News

Editors

Purdue University, Lafayette, Indiana, is offering a short course for beekeepers January 10, 11 and 12, 1933.

The Indiana State Beekeepers' meeting will hold its annual convention in the State House, Indianapolis, Dec. 16 and 17.

The North Dakota Beekeepers' Association will hold its annual meeting January 18 and 19 at the Agricultural College at Fargo in connection with the short course in beekeeping.

The annual meeting of the American Honey Producers' League is scheduled for February 7, 8, and 9, 1933, at St. Louis, Mo. Prof. V. G. Milum, Champaign, Ill., is secretary of the League.

In addition to the list of honey receivers for the American Honey Institute, listed on page 716, November issue of this journal, are the following: E. T. Cary, A. I. Root Co. of Syracuse, N. Y., and M. W. Cousineau, Moorhead, Minn.

David Grayson, or Ray Stannard Baker as he is in real life, noted author, devotes a considerable portion of his new book, "Adventures in Solitude," to beekeeping. He tells of the great pleasure he experiences in caring for his little apiary.

The Michigan Beekeepers' Association will hold three sectional meetings this month, December 6, at Adrian; December 7 at Grand Rapids, and December 8 at Saginaw. The winter meeting for the entire state is scheduled for January 25.

The Wisconsin State Beekeepers' Association will hold its annual meeting at Madison, December 8 and 9. The complete program and other information regarding this meeting can be had by writing to Prof. H. F. Wilson, University of Wisconsin, Madison.

The North Dakota Agricultural College, Fargo, North Dakota, is again offering a correspondence course in beekeeping. The instruction is free, outside of the cost of postage, mimeographing and paper used. A diploma is awarded for work completed. The privilege of taking this home study course is extended to people of other states, who may wish to enroll.

The annual meeting of the Southern Beekeeping Conference will be held at Rice Hotel, Houston, Texas, on Dec. 5 and 6. This is a large sectional association, covering the southern states from Texas to Georgia and Florida, in which beekeeping problems are similar. Producing and shipping package bees is of vital interest to beekeepers in this region.

A book of 320 pages, containing 160 illustrations, entitled "Fortschritte in der Bienenwohnungsfrage," by Field Marshall Alexander von Matyas, recently published by Druck und Verlag, Budapest, Hungary, is an exhaustive treatment of the development of bee hives. This is the book referred to in the article by Dr. Phillips, beginning on page 735 of this issue.

In mentioning the Buckwheat Honey Pool, formed for buckwheat honey producers of New York and Pennsylvania last month, it was stated that the John G. Paton Co., New York, is the sales agent for the pool. The H. & S. Honey & Wax Co., Inc., should also have been mentioned since both the John G. Paton Co. and the H. & S. Honey & Wax Co. are acting as agents for the Buckwheat Honey Pool.

One of the demonstration teams in Home Economics in Iowa has developed an inexpensive cereal with high food value which they have named "Wheat Nuts." It is made by sifting together 3½ cups wholewheat flour, 1 teaspoonful soda, 1 teaspoonful salt, then adding one cup of honey and enough buttermilk to moisten. This is baked in a moderate oven as in baking a cake, then broken into small pieces, ground in a food grinder, and finally browned in the oven.

The Kellogg Company, Battle Creek, Michigan, has just published a new honey recipe folder entitled "Eat More Honey." It contains eight recipes calling for honey and advises substituting honey for sugar in many recipes. Beekeepers can no doubt obtain a supply of these folders to give to their customers by writing to the Kellogg Company, Battle Creek, Michigan.

A paper by Dr. E. F. Phillips, entitled "Die Verwertung der Melezitose durch die Honigbienen," (the utilization of melezitose by bees) was recently published in Germany. There has been some discussion in Europe to the effect that melezitose, a rare sugar sometimes found in honeydew gathered from pine and fir trees, could not be utilized by honeybees. Dr. Phillips has shown experimentally that bees can utilize it.

Gleaned by Asking

Geo. S. Demuth

Marking Net Weight on Sections

Question.—What is the federal law relating to marking the net weight on sections of comb honey in inter-state shipments?—Charles Lawrence, New York.

Answer.—When comb honey is shipped across a state line on its way to market, the federal regulations require that each section be marked as to net weight. Many of the states have a similar regulation for honey sold within the state, but in other states, including New York, this is not required. However, in grading honey it is customary to make the sections in each grade about the same weight so that there will be no choice among them as to weight.

Wintering Bees Indoors

Question.—Which is the better place to winter bees, in the basement or on the third floor of a building?—Mrs. R. B. Hall, Ontario.

Answer.—A cellar or a basement is a much better place to winter bees than in a room above ground, because the temperature there can be kept more nearly constant. A room above ground would be liable to warm up so much on sunny days during the winter that the bees would become uneasy and fly from their hives in large numbers. On the other hand, unless artificial heat were supplied, an upper room would become too cold for successful wintering during cold spells.

Preventing Granulation in Honey

Question.—When honey is stored in winter, at what temperature should it be kept to prevent granulation?—Raymond J. Marker, Ohio.

Answer.—Recent work by Prof. Dyce indicates that honey in storage granulates most readily at around 57° F. It will granulate, although not so rapidly, at temperatures considerably higher. Extracted honey will granulate in the fall or early winter when kept in ordinary room temperatures, but comb honey usually does not show much if any granulation until late winter when stored at room temperatures. To prevent granulation entirely in comb honey it would be necessary to store it in a temperature of 80° F., or higher.

Preventing Ground Moisture from Entering Packing

Question.—When packing bees in waterproof paper winter cases, would it not be a good plan to place a sheet or two on the ground and set the hive on it to keep out the moisture from the ground?—Mrs. Caroline R. Snoke, Washington.

Answer.—We have not found it necessary to place a sheet of waterproof paper under the hives to keep moisture out of the packing, provided the apiary is located on dry ground as it should be, and provided forest leaves are used for packing material, or at least, put in first so that a layer of loose forest leaves will be on the ground between the hive stand and the paper winter case. Forest leaves if loose do not carry moisture from the ground to the packing above.

Cleaning Hives Which Have Contained Diseased Colonies

Question.—What is the best treatment for hive-bodies, bottoms and covers that have contained colonies having American foulbrood? Is it safe to store such empty hives in the same room with clean supers?—Howard Miller, Pennsylvania.

Answer.—The hive parts should be cleaned thoroughly and the scrapings of propolis and other material should be burned. The hive parts can then be thoroughly washed with a scrubbing brush, or scorched lightly on the inside with a painter's blowtorch, being careful not to char the wood. Storing such hive parts in the same room with clean supers would not contaminate the supers. It should be remembered that the spores which cause the disease are in the scales (the remains of the dead larvae) in the combs. When the combs are destroyed, most if not practically all of the spores which cause the disease are destroyed with the combs. It is well to pile the hive parts from diseased colonies on newspapers placed on the floor until they can be thoroughly cleaned after which the newspapers should be burned.

The Comb Builders

Question.—Which of the bees build the comb, the field bees or the young bees?—E. R. Ferree, West Virginia.

Answer.—The worker bees which secrete the wax and build the comb are usually the younger and middle-aged bees. It has been shown by scientists that the cells of the wax glands are not fully developed in worker bees just emerged. It is also known that the cells of the wax glands decrease and degenerate as the bees grow older, so that old bees secrete wax slowly and with difficulty.

Rendering Wax from Cappings and Old Combs

Question.—How can I render wax from cappings and old combs without going to the expense of buying a regular equipment for this purpose? I tried melting cappings and old combs in a wash boiler, then straining the wax through a wire strainer, but the wax was mixed in with the refuse of the comb and I could not get it out without a press.—Lloyd E. Scribner, Connecticut.

Answer.—There is no practical way at present of separating the wax from the

refuse without a press. You could rig up a press that would answer the purpose fairly well by using an automobile jack to bring pressure upon a burlap bag containing the melted wax and refuse. Some sort of framework will be necessary as a fulcrum for the jack, and a strong form with slatted sides and bottom should be made to hold the bag while pressure is applied. Cappings should be rendered separately since they do not contain a large amount of refuse. In fact, white cappings can simply be melted in a tank or wash boiler, then after the wax has cooled the dirt at the bottom can be scraped off. In order to make the cake fairly clean some of the wax must be scraped off with the dirt at the bottom. This can be rendered in the next batch.

Wintering Bees in Smoke House

Question.—Would it be all right to put my five colonies of bees into a smoke house for winter? The smoke house is made of wood.—Paul Maute, Michigan.

Answer.—No. It would be better to leave the hives outside where they can have the benefit of the sun on bright days. The temperature in such a building would fluctuate practically the same as that outside, about the only advantage being protection from the wind. Furthermore, on warm days many bees would no doubt leave their hive in an attempt to make a cleansing flight and would not be able to get back. It will be better to leave the bees where they are and pack them.

Rendering Wax from Diseased Combs

Question.—Is it all right to render wax from combs containing American foulbrood and have it worked into foundation?—Victor Volstad, Minnesota.

Answer.—Wax rendered from combs containing American foulbrood is evidently safe to use in making comb foundation. In one instance on record, colonies of an entire apiary were shaken from their combs and left to cluster within the empty hives during the night while the combs were being melted and made into foundation on a hand mill. The next day the foundation was given to the colonies and there were no cases of recurrence according to the record. Evidently the disease can not be transmitted in this way. The danger in transmitting the disease is in handling the combs before they are rendered since, if not carefully done, some of the infected material may be exposed so that the disease is transmitted to a healthy colony. For this reason, many prefer to burn diseased combs.

Best Distance of Hives from Windbreak

Question.—At what distance should the hives be located from the windbreak or fence? Some of mine are two feet from the fence. This is a solid board fence, four feet high, and while it is good protection from the wind, the hives are in the shade in the afternoon.—Walter F. A. Lemke, Wisconsin.

Answer.—In case of a solid board fence, the wind swirls to the ground at certain distances from the fence, depending upon the lay of the surrounding land and buildings and the height of the fence. Beekeepers have noticed in such cases that a row of colonies at a certain distance from the fence winter poorly year after year, on account of the swirling of the wind, while those nearer the fence or further away may winter well. This can be remedied to a certain extent by spacing the boards slightly apart so that a strong wind does not create a partial vacuum just beyond the fence. Theoretically, the hives should be close to the fence on the north side, but far enough away on the east and west sides to permit the sun to shine on the hives during most of the day.

Converting Honey Into Dry Crystalline Form

Question.—What is the method of making honey into a dry crystalline form like ordinary sugar?—Willard A. Genrich, New York.

Answer.—No method has been perfected for making a dry crystalline form of honey without greatly changing it in other respects. Since honey is composed largely of two sugars, dextrose and levulose, one of which crystallizes readily while the other does not, the problem of making a dry sugar from honey is somewhat complicated. Furthermore, the levulose has a great affinity for water and if in crystalline form absorbs moisture from the atmosphere and thus becomes sticky.

Standard Density for Honey

Question.—Would not a standard weight for a given measure of honey be a good thing?—W. L. Fowler, Oregon.

Answer.—There is considerable variation in the density of honey in different localities from different sources, and during different seasons. In general, honey produced in an arid region has a much greater density than that produced in a moist region, and during a dry season it is heavier than during a wet season. The new government grading rules for extracted honey specify that the honey shall weigh not less than 11 pounds, 12 ounces, per gallon of 231 cubic inches at 68° F., to be eligible to U. S. Fancy or No. 1. Some western honey, and in dry seasons some eastern honey as well, weighs 12 pounds or more to the gallon.

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We do not guarantee the reliability of honey sellers, although we require strict references from them.

CLOVER HONEY—Sturdevant, St. Paul, Neb.

TRY WIXSON'S HONEY, Dundee, New York.

CLOVER honey in new 60-lb. cans. Wells B. Crane, McComb, Ohio.

CLOVER honey in new 60's. D. R. Townsend, Northstar, Mich.

CLOVER honey, comb and extracted. Lewis Klaty, Carsonville, Mich.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

CHOICE clover honey at 6c. Sample, 15c. W. A. Stith, Troy, Ohio, Rt. 4.

FOR SALE—Basswood honey in 60's, or pails. C. S. Watts, Exeland, Wis.

FANCY clover honey in 60-lb. cans. Write for prices. J. P. Moore, Morgan, Ky.

CLOVER HONEY—New cans, $6.00 case. Sample, 15c. Edw. Klein, Gurnee, Ill.

FINE clover extracted honey, $7.20 per case of 120 lbs. Noah Bordner, Holgate, Ohio.

CHOICE clover honey in 60's, at 5c. Sample, 10c. Wm. J. Martin, Croswell, Mich.

PALMETTO, mangrove or amber honey in barrels. Peter W. Sowinski, Fort Pierce, Fla.

WHITE clover extracted honey. Write for prices and sample. Kalona Honey Co., Kalona, Iowa.

CLOVER, basswood, buckwheat and mixed extracted and comb. F. W. Lesser, Fayetteville, N. Y.

FOR SALE—Choice clover honey in new sixties. C. F. Grauer & Son, Rt. 3, Saginaw, Mich.

MICHIGAN clover-basswood blend extracted honey in 60's. Leland Farnsworth, Davison, Mich.

CHOICE white clover honey, crystal clear, new sixties, case or more. Don Barrett, Howell, Michigan.

EXTRACTED honey for sale. New crop basswood. Write for price and sample. Gelser Bros., Dalton, N. Y.

NEW crop clover, also new buckwheat in 60's and 5-lb. pails. Earl Rulison, Route 1, Amsterdam, N. Y.

FOR SALE—Comb and extracted in most any form wanted. State your wants. H. G. Quirin, Bellevue, Ohio.

EXTRACTED and comb, clover honey; color, extra white; satisfaction guaranteed. Tom Baldwin, Cecil, Ohio.

STOLLER'S excellent quality clover honey, comb, cut comb and extracted. White stock, unexcelled. Write Stoller Apiaries, Latty, Ohio.

COMB HONEY—Let us quote. E. C. Snyder, Bloomville, Ohio.

AMBER and light amber, case or ton. E. S. Miller, Valparaiso, Indiana.

FOR SALE—White clover comb and extracted in 60-lb. cans. C. Holm, Genoa, Ill.

WHITE clover, amber buckwheat honey in new 60-lb. tins. Lee Gable, Romulus, N. Y.

FANCY white clover comb, also buckwheat extracted. Write F. J. Smith, Castalia, Ohio.

CLOVER extracted, water white, case or ton lots. Write Morehead Apiaries, Convoy, Ohio.

FOR SALE—Amber honey in 60-lb. cans and 5-lb. pails. Prices right. Geo. M. Sowarby, Cato, N. Y.

MICHIGAN clover-basswood honey for sale, 30,000 pounds. Ralph Blackman, Portland, Mich.

WHITE clover-basswood honey. New 60-lb. cans; by case, 5½c. A. A. French & Son, Theresa, N. Y.

BUCKWHEAT comb honey, fancy, $2.00; No. 1, $1.75 per case, 24 sections. Noel J. Loucks, Springboro, Pa.

NORTHERN Michigan clover or milkweed honey, new cans, 5c per lb. C. J. Freeman, Mesick, Mich.

FINEST quality comb and extracted honey. Write for new reduced prices. Howard Grimble, Holcomb, N. Y.

WHITE honey, new crop; dozen 5-lb. pails, $4.80. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

CLOVER HONEY—White, light amber, amber. Any package. Depression prices. C. J. Baldridge, Kendaia, N. Y.

FANCY buckwheat comb honey, $2.25; No. 1, $1.95, in carriers of 6 cases. Edge Water Apiaries, Phelps, N. Y.

CLOVER honey, new 60-lb. cans, 6c lb.; 5-lb. pails, $4.80 doz.; large lot discount. Jos. H. Hoehn, Ottoville, Ohio.

OHIO'S finest comb and extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

FOR SALE—Michigan white extracted honey in 60-lb. cans. Let us quote you prices. M. H. Hunt & Son, Lansing, Mich.

FOR SALE—Comb honey, all grades, at lower prices, in quantity lots. Write N. B. Querin & Son, Rt. 4, Bellevue, Ohio.

TRY northern Michigan honey from Cedar River Apiaries. It excels. Liberal sample on request. E. E. Johnson, Bellaire, Mich.

HOWDY'S HONEY—Excellent white extracted in sixties, from central and northern Michigan. Howard Potter, Ithaca, Michigan, or 69 Perkins Hall, Cambridge, Massachusetts.

CHOICE clover honey in 5, 10, 60 lb. tins; also fancy and No. 1 comb. Harry T. Gable, Romulus, N. Y.

EXTRACTED white clover, goldenrod or buckwheat honey or comb honey, for sale. H. E. Crowther, Jefferson, Ohio.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

RASPBERRY and milkweed honey. Comb and extracted. Prices to comply with the times. Hubbard Bros., Boyne Falls, Mich.

FOR SALE—Finest quality white clover extracted honey in new sixties, at 5c; sample, 10c. W. J. Manley, Sandusky, Michigan.

HONEY FOR SALE—From clovers and fall flowers; new cans and cases. Samples free. W. S. Earls & Son, New Canton, Ill.

CARLOAD or less Michigan clover honey. New cans and cases. Write us your needs. E. D. Townsend & Sons, Northstar, Mich.

WHITE CLOVER honey, extracted, comb, and chunk. Sample, 1 lb., 15c; no stamps. F. W. Summerfield, Grand Rapids, Ohio.

FINE new clover comb, fancy or No. 1, six or eight case carriers. Also clover extracted. Reasonable. Ross B. Scott, La Grange, Ind.

TUPELO HONEY—Will not granulate. Packed in any size, 8-oz. bottle to 50-gallon barrel. Anthony Bros. Honey Co., Apalachicola, Fla.

FOR SALE — Clover honey scientifically steam-heated, water white, $7.00 per case; unheated, $6.60. Virgil Weaver, Moville, Iowa.

NEW YORK State honey, comb and extracted; buckwheat, amber or clover. State quantity and kind wanted. C. B. Howard, Geneva, N. Y.

FOR SALE—5-lb. pails, clover honey, 35c each; packed 36-pail lots; 60s, 5½c lb.; buckwheat, 4½c. Wm. G. Blake, Port Huron, Mich.

HARRIS—HARRIS—HARRIS—HARRIS—Finest quality clover extracted honey in new sixties. One can or a thousand. Since 1878. J. N. Harris, St. Louis, Michigan.

CARLOAD or less delicious white and amber extracted clover honey, reasonable; also 130 cases heartsease. John Burghardt, Grand Island, Nebr.

DEPRESSION price white clover honey in new cans and cases, 4½c in 2-60's; 10 or more cases, $5.25 per case. F. Strahan, Linwood, Nebr.

WHITE clover basswood blend extracted honey in new 60-lb. cans, 5c per lb. for case of 120 lbs. or more. L. S. Griggs, 711 Avon St., Flint, Mich.

HONEY FOR SALE—1932 crop, white clover, 1932 crop, basswood in new 60's. Write for prices. Sample, 10c. Meyer Toom, Route 4, Knoxville, Iowa.

FANCY white comb in six or eight case carriers. Fine white extracted in 60's and 5-lb. pails. Case or ton lots. Very reasonable. Wilbur Green, LaGrange, Ind.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

IF you want some nice comb honey we have it, about 500 cases, and extracted honey in 60-lb. cans, 5-lb. pails, and bottles of all sizes; both clover and buckwheat. E. H. Pratt & Son, Whitney Point, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

FANCY quality white and sweet clover honey, in new 60-lb. cans, $6.00 a case, 120 lbs. We guarantee satisfaction. Martin Carsmoe, Ruthven, Iowa.

CLOVER HONEY in 60's, light amber, 6c; also clover or buckwheat in 5, 10 lb. pails. Buckwheat comb, No. 1, $2.25 case. H. B. Gable, Romulus, N. Y.

CLOVER comb, fancy, $2.75; No. 1, $2.25 per case. Extracted in new sixty-pound cans; clover, 6c; clover-buckwheat, 5c per lb. Walter A. Wood, Naples, N. Y.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Assn., Denver, Colo.

HONEY—We sell the best comb in carriers of eight cases each—extracted basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 W. Huron St., Chicago, Ill.

TO our hundreds of agents and customers in U. S. and Canada, active, dormant and dead, write in at once for latest lowest priced illustrated circular. It will triple the active, liven the dormant, and raise the dead. Political fireworks are over and settled; times are better and all you need now is plenty of Griswold's great health sweets—honey, maple syrup, table syrup, maple sugar and cream—and you will enter the new year happy, fat and prosperous, willing to cancel the foreign debt for we'll never get it anyway. Griswold Honey Co., Madison, Ohio, U. S. A.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the sellers.

WANTED—Carlots honey, also beeswax, any quantity. Mail samples, state quantity and price. Hamilton, Wallace & Bryant, Los Angeles.

WANTED—A car or less quantity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

WANTED—Carloads or less, all grades extracted honey, also comb honey. Mail samples and delivered prices. C. W. Aeppler Company, Oconomowoc, Wisconsin.

HONEY WANTED—Honey accepted as pay for printing stationery or labels. Mail honey sample. 8½x11 printed letterheads, $3.95 per M.; other printing accordingly. Earl S. Hallock, Atwater, Ohio.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Prolucers' Assoc., Denver, Colo.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

ELECTRICALLY-HEATED beekeepers' uncapping knife, standard 10-inch. Satisfaction guaranteed. Price, $10.00. When ordering, state your voltage, 110-volt or 120-volt. Only maker in U. S. A. Paul Krebs, 8000 Fulton Ave., Detroit, Mich.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

240 STANDS bees, guaranteed free from disease. Clarence Engle, Kearneysville, W. Va.

SEND queens anywhere, anytime. Tested Italian queens, 75c each. D. W. Howell, Shellman, Georgia.

CAROLINA QUEENS — Line-bred three-banded Italians, hardy and prolific. With health certificate, safe arrival and satisfaction insured. One to ten, 30c each; ten or more, 25c each. Carolina Bee Company, Kenansville, N. C.

MISCELLANEOUS

WANTED—Used 45-frame extractor. Give reason for selling. Theo. Keinath, Vassar, Mich.

BEEKEEPERS—Improve sources of nectar by planting vitex trees, or seed. Two-year-old trees, 40c; one-year-old trees, 25c. New tested seed at $1.00 per ounce. All prepaid. Joe Stallsmith, Galena, Kansas.

ANNUAL report American Honey Producers' League, including 14 papers and complete discussion of 1932 convention for $1.00, membership included. Address V. G. Milum, Vivarium Building, Champaign, Illinois.

FOOD DEPARTMENT

(Continued from page 767.)

½ cup dates, or ¼ cup figs and ¼ cup raisins. Nuts may be included. Add just enough honey to hold together. Butter the hands, mold into balls and put on sticks. Dip in chocolate or melted fondant.

Honey Rice Krisps

½ cup granulated sugar, ½ cup honey, 2 tablespoons butter, 1 teaspoon vinegar, 1 package Kellogg's Rice Krispies. Cook sugar and honey slowly, stirring occasionally, until the temperature of 290° F. (hard ball) is reached. Add butter and vinegar. Pour hot honey syrup over Rice Krispies. Form into bars or balls. Makes 12 bars or balls.

And if these honey combinations taste good to members of your family and these honey holiday gifts bring delight to your friends, don't you think the same honey combinations would taste good to other families and that they, too, might want to give the same honey holiday gifts to their friends? My main purpose in suggesting them to you is that you pass them on so they will stimulate your own local honey market, your beeswax market, and help make our beekeeping industry a necessary factor in contributing not only to the wealth of agriculture but the pleasure and health of our people.

May your Christmas be honeyfied and glorified!

TOLD BY THE JAY

(Continued from page 757.)

My wife could not get over the habit of carrying a handkerchief with which to wipe off the perspiration, and I got a big kick out of watching her go to a lot of trouble with her clumsy leather gloves, getting out her handkerchief only to find her face caged where it could not be gotten at. She said it was truly exasperating when she wanted to taste some delicious honey to have to go into the house and disrobe. "Why," she remarked, "one can not scratch one's nose no matter how badly it itches." Such was the price of safety.

She does not take readily to the idea of wearing most anything men wear, and does not like to be seen in knickers. She therefore had a skirt hidden in the shrubbery close at hand. When visitors hove in sight, she could walk right into that skirt in less than a jiffy and emerge in female attire. One day I heard her calling but for a time could not locate her. After a time I found her crouching behind a packing case. She said, "See that horrid man right between me and my skirt." I had to decoy him away so she could reach her wardrobe.

That night my wife remarked, "I have been carefully going over things and have arrived at a certain conclusion." "And what is that particular conclusion?" I asked. "Just this. A woman's place is in the home." And such it has been ever since.

—DEALERS—
ATTENTION

We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

Falcon Quality Products

W. T. Falconer Mfg. Company
Falconer, New York

HOLIDAYS ARE HONEY DAYS

No Christmas or New Year dinner would be complete without honey. Oranges are put into nearly every stocking that kiddies hang up Christmas Eve. A wonderful hookup has been arranged by the Institute to make orange buyers honey conscious these holidays by the California Fruit Growers' Exchange. Thousands of leaflets are being mailed out by the Exchange suggesting honey and citrus fruit combinations, as the result of direct suggestion by **Mrs. Jensen.**

These are in the form of food lessons and may be had by writing the Institute or the Exchange, as in some cases as many as 500,000 copies have been prepared and are being distributed in this wonderful help for honey. These honey helpful contacts by the Institute cost money and help you sell your honey. Funds are needed for this work and you are invited to help with money or honey, no matter how little or how much. Be sure to get these recipes for the Holidays of 1932-33. Also be sure to send some honey to your nearest honey receiver mentioned in this issue, or money to the Institute.

R. S. Simmons of the California Fruit Growers' Exchange deserves your thanks for this wonderful help. His picture appears above.

AMERICAN HONEY INSTITUTE

417 Few Street, Madison, Wisconsin

STOP Your Rupture Worries!

C.E. Brooks, Inventor

Why worry and suffer with that rupture any longer? Learn about my perfected invention. It has brought ease, comfort and happiness to thousands by assisting in relieving and curing many cases of reducible hernia. It has Automatic Air Cushions which **bind and draw the broken parts together as you would a broken limb.** No obnoxious springs or pads. No salves or plasters. Durable, cheap. **Sent on trial** to prove it. Beware of imitations. Never sold in stores nor by agents. Write today for full information sent free in plain, sealed envelope.

H. C. BROOKS, 621-C State St., Marshall, Michigan

4% *Banking by* **MAIL**

E.B. SPITZER PRESIDENT
E.R. ROOT VICE-PRES.
H.E. AYLARD CASHIER

A tax-free 4% savings account here will make your New Year more prosperous. Backed by 40 years' continuous success.

THE **SAVINGS DEPOSIT BANK CO.** MEDINA OHIO

To New York State Beekeepers

Honey Containers

We can save you money on your cans, pails, and jars whether you want a case or carload. In 1931, we sold twenty carloads of honey containers. **THERE'S A REASON.** Write for prices.

Have you noticed Root's prices on Honey Extractors, Extracting Equipment, Cartons, Wrappers, Display Cases, Labels, etc.? Large stocks are carried in Syracuse in order to give you quick service when you need it.

A. I. Root Company of Syracuse
Midland Ave. and Tallman St.
SYRACUSE, N. Y.

Serves You Best

CHOICE comb and extracted honey. Roy C. Stoller, Latty, Ohio.

FOR SALE—100 new T supers. Price reasonable. Grace M. Bender, Newman, Ill., General Delivery.

CAPPINGS and old comb for rendering, 5c per lb. for rendered wax. Either wax or cash for pay. D. H. Morris, Swanton, Ohio.

Package Bees

For April and May delivery. Safe delivery guaranteed on pure three-banded Italians. Price list free.

THE CROWVILLE APIARIES, ROUTE 1, WINNSBORO, LA.

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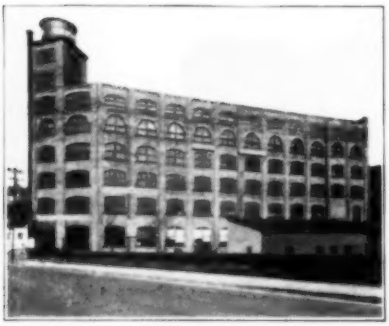

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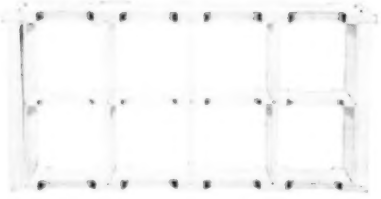

Deep Section Holder

Lewis offers as a solution the deep section holder and separator illustrated at the left. Both may be used in standard hive bodies either entirely for section honey or a combination with extracted.

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Deep Section Separator

The deep separator is metal bound by a patented Lewis method, hangs in the body like a frame and is so strong as to last for years.

Government reports show section honey sells in an easy market. Why not produce some section honey in 1932? Write the nearest Lewis agency listed below for further particulars.

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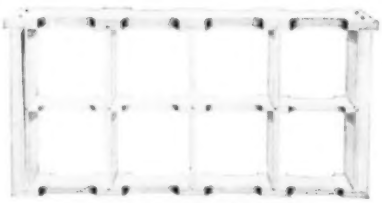

Deep Section Holder
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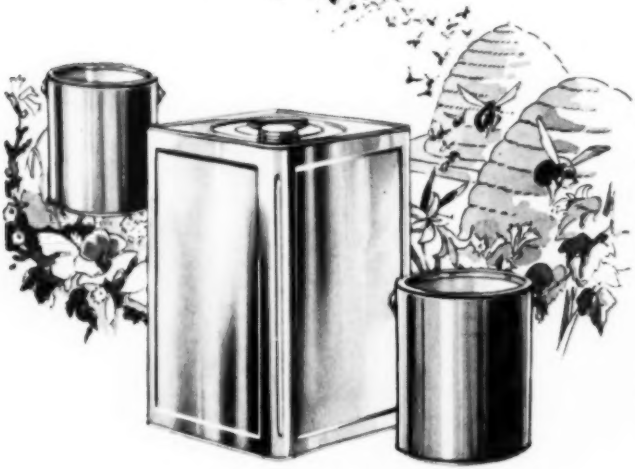

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HONEY CONTAINERS

2½-lb. cans, per carton of 100	$3.50
5-lb. pails, per carton of 50	2.90
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10-lb. pails, per carton of 50	4.40
10-lb. pails, per 100	8.75
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5-gal square cans, in lots of 50 or more	.90

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4x5x1⅜-in., No. 1, plain, per 500	3.75
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For 24 sections 4¼x4¼x1½-in, per 10	2.30
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5-lb. pails, per carton of 100	5.65
10-lb. pails, per reship. case of 6	.70
10-lb. pails, per carton of 50	4.20
60-lb. cans, per case of 2 cans	.85
60-lb. cans, in bulk, each	.30
16-oz. glass jars, per case of 24	.95
24-oz. glass jars, per case of 12	.60
8-oz. glass jars, per case of 24	.70

F. O. B. Boyd, Wisconsin

Write for prices on shipping cases and comb-honey wrappers.

August Lotz Company
Boyd, Wisconsin

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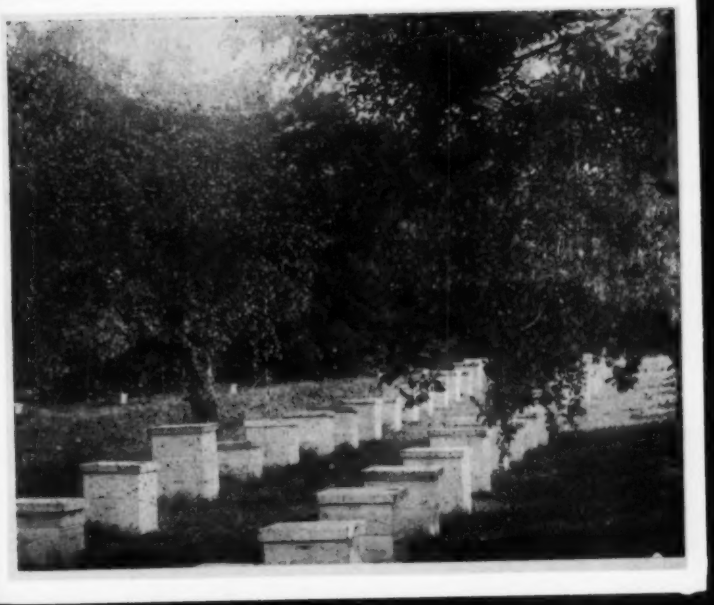
Gleanings in Bee Culture



October, 1932
Vol. LX. No. 10

To New York State Beekeepers

Honey Containers

We can save you money on your cans, pails, and jars whether you want a case or carload. In 1931, we sold twenty carloads of honey containers. **THERE'S A REASON.** Write for prices.

Have you noticed Root's prices on Honey Extractors, Extracting Equipment, Cartons, Wrappers, Display Cases, Labels, etc.? Large stocks are carried in Syracuse in order to give you quick service when you need it.

A. I. Root Company of Syracuse
Midland Ave. and Tallman St.
SYRACUSE, N. Y.

Serves You Best

October Items

F. O. B. Lansing, Mich.

Plain Cellophane wrappers for 1-lb. sections,
50c per 100 **$4.50 per 1000**

24-lb. paper cases for comb honey,
$1.50 for 10. **$14.00 per 100.**

1-lb. jars, tall jars, 24 to the case,
10 cases for $9.00 **25 cases for $21.50**

1-lb. "Bee Hive" jars,
10 cases for $9.00 **25 cases for $21.50**
We are distributors for Michigan for "Bee Hive" Jars.

"A" Grade Tin Paste
1 pt., 25c. **1 qt., 45c.** **1 gal., $1.50.**

Five-pound friction-top pails
100 for $6.00. **1000 for $56.00**

Five-gal. cans, 2½" screw caps
$3.95 per dozen. **$15.00 for 50.**

Five-gal. cans, packed 2 cans to white pine double cleated cases.
10 cases for $9.60. **50 cases for $45.25.**
100 cases for $89.00.

Send for our summer price list for prices on complete line of honey containers for comb and extracted honey.

M. H. Hunt & Son

510 N. Cedar St. **Lansing, Mich.**

Root Service from

CHICAGO

It is a fine

GOOD CROP

we have this year.

This will sell best and yield most profit in good containers. We offer them and the most complete line, too.

Glass jars, all sizes.
Tin cans and pails.
Cartons, regular and window.
Wrappers, decorated and plain.
Shipping cases—wood, paper.

Write for new container price list. Your orders for any supplies will have quick atention here.

A. I. Root Co. of Chicago

224 W. Huron St., Chicago, Ill.

The American Honey Institute works for all of us. We are glad to share in its support.

Brass Tacks

That's what we've all got to get down to—brass tacks. And now let's do it regarding your **HONEY CONTAINERS.**

You have the right to expect No. 1 grade merchandise, promptly delivered, at fair prices.

Our **CONTAINERS** measure up to these requirements 100 per cent. Wire, phone or write for your supply today.

2½-lb. cans, per reship. case of 24	$0.95
2½-lb. cans, per carton of 100	3.40
5-lb. pails, per reship. case of 12	.85
5-lb. pails, per carton of 50	2.92
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August Lotz Company

Boyd, Wisconsin

Do you support American Honey Institute? We are glad to!

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Gleanings in Bee Culture

November, 193
Vol. LX. No.

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August Lotz Company
Boyd, Wisconsin

Do you support American Honey Institute? We are glad to!

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Gleanings in Bee Culture

December, 1932
Vol. LX. No. 12

. . . FREE . . .

BEES $100.00 IN GOLD QUEENS

Our honey is not selling at big prices because the millions of people buying their daily food never think of honey. The American Honey Institute is the best way the beekeeper has of telling the millions of people about honey. They are getting multitudes interested in honey and could do wonders if they had ample funds. **THEY NEED YOUR HELP TO GET THE SUPPORT OF THE AMERICAN BEEKEEPERS. YOUR MORAL SUPPORT WILL HELP THE INSTITUTE. YOUR CONTRIBUTION WILL BE OF VALUE TO THEM.** But your effort in getting out and getting the other fellow interested will be the **BEST THING YOU CAN DO FOR THEM.**

Just for the fun and to get a little competition we are offering the following prizes. The prizes are small but the cause is indeed **BIG.**

$20.00 IN GOLD TO THE ONE SENDING IN THE LARGEST CONTRIBUTION FROM A SINGLE INDIVIDUAL, FIRM OR ASSOCIATION.

$20.00 IN GOLD TO THE ONE SENDING IN THE LARGEST AMOUNT IN CASH CONTRIBUTIONS AND PLEDGES.

$20.00 IN GOLD TO THE ONE SENDING IN THE LARGEST NUMBER OF CONTRIBUTORS. EITHER CASH OR PLEDGES.

$20.00 IN GOLD TO THE ONE SENDING IN THE LARGEST NUMBER OF ONE DOLLAR CONTRIBUTORS. CASH OR PLEDGES.

$20.00 IN GOLD TO THE ONE SENDING IN THE LARGEST NUMBER OF FIFTY-CENT CONTRIBUTORS. CASH OR PLEDGES.

PLEDGES TO PAY DURING 1933 COUNT IN ALL EXCEPT THE FIRST PRIZE.

All contributions must be from people not already contributing to the Institute.

ITALIAN QUEENS—To everyone entering this contest we are going to give FREE two of **STOVER'S SUPERIOR ITALIAN QUEENS.** To the first fifty writing us that they are entering this contest we are going to send five additional **FREE** queens to each.

PACKAGE BEES—To every contestant sending contributions for $100.00 or more to the Institute we will give two of **STOVER'S** two-pound packages of **BABY BEES** with queens **FREE.**

GET IN THE CONTEST. You are bound to **WIN** something. If enough of you get in, the Institute will **WIN;** if they win, we will all **WIN.**

This contest is open to all without any restrictions. The **CONTEST** will close Feb. 15, 1933. The winners will be selected by beekeepers at the February meeting, and the winners will be announced in this space in the April issue. The **GOLD** prizes will be sent as soon as winners are determined; the bees will be sent in the spring, while the queens will be sent at our convenience in June, July and August. Get in the contest. If you can send but two contributions you might win a **GOLD** prize. We have tried to give everyone a chance to **WIN** one or more. Meet every argument against your request with a better one for it. Don't accept **HARD TIMES** for an excuse; tell them we are trying to make **TIMES BETTER.** If we can be of any help to any contestant with suggestions, we will be glad to help in any way that we can.

DON'T PUT OFF. START TODAY. ASK EVERY BEEKEEPER YOU SEE. IF YOU WON'T GET IN THE CONTEST, GET SOMEONE ELSE TO. If there is anyone in the world that we have **FAITH** in, it is the beekeepers of North America; and let us say to Miss American Honey Institute, that we do not believe the beekeepers will fail you, but that they will rally by the thousands to your support if someone will just tell them of your good work.

The above prizes are offered by The Stover Apiaries in the interest of The American Honey Institute.

PACKAGE BEES FOR 1933

The need for high quality goods at the lowest possible price was never greater than now. We are doing our best to meet this demand. We are in better position to serve you than ever before. Let us quote you on your requirements.

We also have a small but efficient factory. We can make your supplies cheap for you. Dovetailed bodies complete, no frames, 30c each. With frames, 60c each.

The Stover Apiaries, Tibbee Station, Mississippi